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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

GOING VALUE: ITS VALIDITY AND LOGICAL APPLICATION

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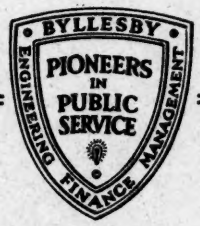

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[1] See
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GOING VALUE: ITS VALIDITY AND LOGICAL APPLICATION

By JOHN D. SUMNER

IN the February issue of the Journal,[1] the writer discussed the validity of the manifold interpretations that have been placed upon that much abused phrase, going value. The conclusion was reached that one only of these many uses of the term might logically be considered as a distinct element in public utility valuation for rate-making purposes. This use is that which considers going value as those deficits or losses of income necessarily and unavoidably incurred by a utility in developing its business.

In this brief paper it is intended: (1) further to define going value as an amount which may be included in a rate-base, (2) to defend briefly its allowance against certain criticisms which entirely challenge the right of going value to further consideration in public utility valuations, and (3) to discuss going value in conjunction with the several recognized standards of valuation.

[1] See 4 *Journal of Land & Public Utility Economics*, 59–70.

As a phrase less misleading in its implications, "going cost" seems more accurate than "going value" to describe the nature of deficits below a reasonable return, necessarily incurred in developing a public utility business to a point of financial maturity. Indeed, "value" is a term of unfortunate antecedents and implications when used in relation to any of the items in a public utility rate-base, for "value," in the language of both business and economic theory, has a market connotation. It usually signifies power in exchange and has become attached inextricably to that use. Anything that suggests market value is confusing in rate discussions, because generally speaking, it reflects either actual or potential earnings, while "value" for rate purposes is a *determined* amount upon which to base earnings. The so-called elements of "value" for which allowances are ordinarily made in rate cases are in reality simply rights in tangible and intangible items which are used and useful in the service of the public. The

size of these rate-base items is measured in terms of the pecuniary outlays necessary to acquire them, rather than in terms of how much net income they are capable of producing. Sometimes these "outlays," as in the case of appreciation in land values, have never been actually incurred, but are purely hypothetical. Likewise outlays which measure rate-base items[2] often represent simply the changing value of the dollar, as reflected by indexes of general prices, or the different amounts reflected in special commodity price indexes, which the utility, or a substitute utility, would necessarily pay if it were to build its plant at the time of the valuation.

By common usage, the term "cost," in the sense of actual or hypothetical pecuniary outlays, has become accepted as a measure of the so-called "value" of a utility for rate purposes.[3] Thus it is customary to speak of value for rate purposes in terms of spot cost of reproduction, historical cost, investment cost, cost of reproducing the service, and similar phrases in which "cost" is used to signify pecuniary expenses incurred in acquiring rate-base items.

Granting the "cost" basis of rate regulation, is it justifiable to apply the "cost" appellation to sums which represent the amount of return not received during the period before the utility reaches a point of financial maturity? Or, differently stated, may going value in the sense of going or development cost properly be included in the rate-base?

Nature and Justification of Going Cost Allowance

Before considering the question directly, let us inquire further into the nature of the amounts which I have chosen to call going cost. To avoid misconstruction, it should be pointed out that these amounts are confined to the so-called development period of a utility's business, i. e., the period that nearly every concern must go through before it arrives at a point where revenues will first meet operating expenses and depreciation, taxes, and a reasonable return upon the "fair value" of property devoted to the public use. This may be termed the point of financial maturity.[4] Going cost in this sense is not synonymous with the total net deficits incurred during the life of the utility, nor does it bear any closer relation to surplus earnings than do any of the *direct* costs or outlays incurred in acquiring physical units of property.[5]

The justification for thus segregating the necessary losses of the development period lies in their nature, and in the close similarity of purpose and usefulness between these amounts and the *direct* cost outlays represented in the rate-base. A fundamental rule of rate regulation is that a company is entitled to a fair return upon all the investment used and useful in public service. Where the stockholders choose to invest their funds in a new utility, they do so usually with a realization that adequate earn-

[2] Usually expressed in terms of unit prices.

[3] This, of course, is employing the term "cost" in its ordinary business sense. That a distinction may well be drawn between pecuniary outlays (or costs in popular parlance), and costs as related to economic value theories, is well brought out in a recent article. See Raymond T. Bye, "The Nature and Fundamental Elements of Costs," 41 *Quarterly Journal of Economics* 30 (November, 1926). However necessary this closer use of costs may be in a discussion of value theories, it is of less significance in rate discussions, where economic "value" is not the point at issue.

[4] A rather arbitrary distinction must be made in defining the duration of the so-called "development" period. Otherwise, the wave-like characteristics of utility development would introduce undue complexity. This is a question of expediency and no general rule can be stated to cover all possible cases.

[5] Except, of course, in so far as these surplus earnings may result from a conscious *policy* of compensating development losses through the rate of return.

ings will not immediately be forthcoming. The exact interval during which a return will not be received is uncertain, but the intelligent investor recognizes that some postponement of earnings is unavoidable. Clearly, in an industry in which decreasing costs are so important, this waiting for a return is unavoidable. Likewise, it represents an amount equally useful to the customer and to the utility. To the customer the bearing of these waiting or going costs by the stockholders means that he has received service during the development period at less than the actual cost of service to the utility. Furthermore, it means that the stockholder, by engaging to receive a small or no return during the development period has in effect contributed at least a portion[6] of the costs of developing the load factor to a point where the continuance of service is assured at unit prices which will thereafter yield approximately the actual cost of service.

An allowance for going cost, therefore, is premised upon the assumptions, first, that these sacrifices of return must necessarily be incurred, and, second, that they represent amounts which are useful to the public as well as to the utility.

But granting this early sacrifice of return, have not stockholders, in their calculation of future possibilities or probabilities of a return, already discounted this factor in the price paid for stock? And if so, is there any reason for considering further their "sacrifice" in bearing a portion of the "going cost"? The answer to this question is found in the very nature of rate regulation. It is true that such discounting of the future ordinarily will, or at least should, be made by an investor. But it is necessarily based upon the expectation of future compensation for his earlier sacrifice of return. In unregulated competitive industry the investor will presumably have an opportunity to charge rates or prices sufficiently high to compensate for early deficiencies of return. Clearly, then, an entirely just claim does accrue to the investor by virtue of his early assumption of going cost, as I have defined that term.

If the early stockholders were unwilling to assume this sacrifice of return, customers would necessarily be called upon to contribute, either through higher rates or through some sort of subsidy, the amount of the going cost or else forego the service. It seems useless to deny that as the term is employed in valuation discussions, as much "cost" is involved in this conscious postponement of income during the development period as in the *direct* pecuniary outlays which are devoted to public service. A conscious and deliberate investment in a business in which an adequate return is not expected to be immediately forthcoming, certainly involves a waiting cost to the investor. True, he is not certain just how long the interval will be, what will be the precise amount of the deferred return, or exactly to what extent these deferred claims to income will subsequently be recouped. But to deny on such grounds that no cost is involved, or that no contribution of capital is in effect made, would be comparable to saying that a utility makes no investment of direct pecuniary outlays unless it can estimate in advance exactly how much capital will be required, and exactly how great a return will actually be secured.

We may conclude that, as rate regulation refuses to consider this factor either

[6] To the extent that rates paid by the consumer during the development period are less than those rates would be if fixed on a true cost basis, the stockholders are advancing a portion of the costs of service.

in the valuation process or in the rate of return, it works an injustice to public utility investors. More important, perhaps, is the probability that such a policy will adversely affect the credit position of the utility.

It is significant that probably a majority of economic writers on the subject, while refusing to agree to the inclusion of these necessary costs of waiting for a return in the rate-base and while sometimes even denying that they are costs in the sense that they can be amortized,[7] nevertheless urge that they should be compensated through the rate of return. This position is stated by one writer as follows:

"The mature company has the power to make larger earnings than the new company without raising rates, and the public can take advantage of this to allow the company to defer part of its fair return to a time when it can be paid with the least burden to the consumer. As much as is necessary for this purpose, and no more, is a proper allowance for going value. And in calculating how much the mature property ought to be worth—its fair value in that sense—this much going value may properly be taken into account. But it should not be confused with the investment in the property itself. And it assumes that rates will be such that a new property will not be worth its cost if immediate cash earnings alone are taken into consideration."[8]

In a footnote the writer states that this is substantially the rule originated by the Wisconsin Commission, differing principally in that the author feels that going value should be considered in the rate of return rather than the rate-base.[9]

Another writer, while recognizing the validity of considering going value in the rate of return, ridicules its inclusion in a rate-base, saying:

"Such deficits, if experienced, are not in themselves *costs* or *investments;* rather they are a reflection of conditions which *involve* cost. The *cost* for which society holds out the prospect of profit is constituted by the disutility involved in facing the *possibility* of low or no returns, or impairment or even loss of the entire investment. Early losses are the very stuff of which business risks are made; and to argue that they are investment —the cost of the going concern—is to overlook entirely the risk-bearing function which is embraced by the owners of all businesses and which is the very essence of entrepreneurship."[10]

The implication of the last quoted writer seems to be that a utility will be able to secure "profits" during later periods, which will compensate what he chooses to call the "risk" of the early postponement of income. This further implies either: (1) the opportunities of utilities to price their services as do unregulated private industries, or (2) an extremely lax administration of rate regulation, or (3) a conscious recognition of such claims by commissions in regulating the rate of return. Presumably utilities are subject to a less degree of risk than industrials, and fortunately so. They operate in at least a partially protected market, and, on the other hand, are regulated in their rate of charge so as to yield a pre-estimated, if not a pre-determined, rate of return.

But the significant fact is that these writers and others, who oppose going cost as an item to be included in the rate-base, admit the existence and equity of the investors' claim to compensation for assuming some of the burden of the development period. Granting, then, the necessity of compensating (or rewarding for) the factor which we have chosen to designate going cost, the ques-

[7] B. W. Lewis, "Going Value—Comments On Its Nature and Legal Status," 17 *American Economic Review* 657, 662 (December, 1927).

[8] J. M. Clark, *Social Control of Business*, (Chicago: University of Chicago Press, 1926), p. 375.

[9] *Ibid.*

[10] B. W. Lewis, *op. cit.*, p. 661.

tion resolves itself into one, not of *whether* these amounts should be recognized, but of *how* that recognition can best be effected.

The position advocated thus far has been that going cost and costs in the sense of pecuniary outlays incurred in building plant and equipment should be considered identically under the "cost" basis of rate regulation. This attitude is based on the logical similarity of the two factors as economic sacrifices equally necessary and useful in the establishment of public utility service.

Waiving this position for the moment, let us consider the question purely from the standpoint of expediency. Is it more advantageous to compensate for not receiving an adequate return through the rate of return or through the rate-base? It is an old dispute,[11] and only a summary will be made of the primary considerations which lead the writer to favor capitalization as the more expedient policy of the two.

One of the most important considerations, and one which has been little emphasized, is that slipshod and unduly approximate methods of estimating the rate of return adequate and fair in any particular case would tend to be encouraged by the use of the rate of return to allow for going value. Indeed, after reading certain treatments of the question which emphasize the "practical" difficulties of measuring going value, the conclusion is almost irresistible that the writers advocating the rate of return method are merely seeking an easy exit from a complicated problem. Regulatory determinations of necessary rates of return are notoriously unscientific and approximate; ordinarily they are based on an obviously cursory survey of factors "to be considered," together with an even less careful application of these considerations to the case in point. If going cost is to be allowed for in the rate of return, its adequate compensation, under present practice at least, will more probably result from the carelessness of regulation than otherwise.

Another factor which is an important desideratum is the greater ease of adding income not received to the rate-base compared with the attempt to approximate an accurate compensation in the rate of return. If any sort of compensation is advocated, an attempt at measurement is necessary, and, once measured, the most expeditious policy would seem to be the relatively simple one of including it in the rate-base.[12]

A third consideration in favor of a capitalization policy is well known. A less discriminatory and more equal distribution of going cost is obtained by adding it to the rate-base than by including it in the rate of return for as long a period as necessary. Since this portion of the cost of service is necessary and fair, why should the burden be placed on any particular class or classes of customers?

Before considering the measurement of going cost in conjunction with the several valuation standards, certain practical objections to going "value" allowances should be mentioned.

The extremely intangible nature of going value, and the difficulty of measuring it in the case of utilities which have been operated for many years, have led numerous courts, commissions, and prac-

[11] For a discussion of the methods followed by the Wisconsin and New York Commissions, and their respective merits, see R. E. Heilman, "Development by Commissions of the Principles of Public Utility Valuation," 28 *Quarterly Journal of Economics* 269 (1914).

[12] It is obvious, of course, that in either case the amount paid by customers would be the same. The principle of discounting the future renders it of no concern whether a sum is paid once and for all, or whether a fair rate of interest is paid on it for all time.

tical students of the problem to look upon it with disfavor. Opponents of going value allowances have not lacked targets at which to aim their criticisms, many of which may to some extent be justified. Thus Professor Vanderblue in discussing the so-called "Wisconsin Method," which is similar to, although not identical with, the going cost analysis presented here, writes:

"These qualifications of going value are obviously more plausible than capable of practical use. They assume the existence of a 'representative firm' with 'reasonable' and honest direction. But what test shall be applied to determine 'slipshod, careless, unprogressive management' of a generation ago; what of 'competition'; the collapse of the 'boom'? The one convincing test is the very ability or inability of the venture to net its owners the normal return which might have accrued from investment in another direction, assuming that its operations have not been squeezed or irrationally hampered by restrictive legislation."[13]

Unquestionably, the determination of the extent to which income was reasonably and unavoidably foregone during the period of a company's development involves many difficult assumptions and problems. Indeed, these difficulties may be so great that a determination of going cost may be impossible in the case of certain utilities too deeply involved in the complications of a lengthy and confused past. But do not similar difficulties attach to many other aspects of rate regulation? The same factors have been important in limiting the use of the prudent investment standard of valuation. Similar difficulties are involved in accurate interpretations of what property was actually "used and useful" in the public service, what promotion and organization expenses were "reasonably" incurred, fair amounts for appreciation in land values in conjunction with dissimilar valuation standards, the extent of "necessary" deductions for either realized or theoretical accrued depreciation, and numerous other aspects of the valuation problem. And in considering other problems of rate regulation—such as the "reasonableness" of operating expenses—questions of a like nature are presented.

To the writer, it seems that these criticisms do not invalidate or even seriously impair the fundamental validity of going value as a necessary cost of development. That they indicate difficulties, it can not be denied. But if one agreed to eliminate problems in rate regulation because of complexity and difficulty of solution, rate regulation would disappear as a fact as well as a problem.

Going Cost and Valuation Standards

As a thorough analyst has pointed out in discussing the depreciation problem as it relates to rate control, many disagreements and misunderstandings have arisen in the discussion of valuation problems largely because dissimilar premises are used by different students of the problem.[14] The varying assumptions and premises basic to the several standards now extant in valuation literature and practice, render it logically impossible to discuss such problems as depreciation, going value, and land valuation without first differentiating the basic theory of valuation employed.

Valuation theories — reproduction cost, investment, actual cost or historical cost—are themselves subject to

[13] H. B. Vanderblue, *Railroad Valuation*. Houghton Mifflin, 1917, p. 174. His note containing citations to Wisconsin cases is omitted.

[14] James C. Bonbright, "Depreciation and Valuation for Rate Control," 41 *Quarterly Journal of Economics* 185 (February, 1927); also in 27 *Columbia Law Review* 113 (1927).

many different interpretations and uses. A paper of greater length than this might be written merely to classify these various interpretations. In the present analysis, the writer will discuss going cost in relation to those standards of valuation which seem to him the most important and the most readily differentiated of the many theories now encountered. These are: (1) the prudent investment basis; (2) the cost of reproduction of the present property and plant; (3) the substitute plant or cost of reproducing the service basis; and (4) the actual or historical cost theory of valuation.

In discussing going cost in relation to these various standards, primary emphasis will be given to the logical applicability of going cost, particularly with reference to *future* policy, rather than to the practical considerations of compromise or give-and-take which unavoidably must govern the essentially ex post facto and retroactive aspects of the valuation problem. It seems to the writer decidedly necessary, before considering the going cost concept in complicated and confused practical situations, to outline clearly the theoretical and purely logical implications of the premises upon which the several valuation theories rest, and the relation of the going cost concept to these premises.

Going Cost and the Prudent Investment Theory

The prudent investment theory of valuation may be defined as follows: As quasi-public institutions, public utilities are entitled only to a "reasonable" return upon pecuniary contributions which have been reasonably necessary to furnish adequate public service.

Under such a theory, going cost would not logically relate to all the income not received below a fair return throughout the life of the plant (unless some special franchise agreement to that effect were entered upon). It would relate only to those amounts which were essential to the adequacy, efficiency, or economy of the service rendered to the public. The opinion frequently advanced is that, under an investment standard, account must be taken of deficits and surpluses throughout the life of the property. Undoubtedly, a cost-of-service agreement may well be entered into which will apply such a view. But the practicability or advisability of such a policy is beside the point in discussing the cost aspect of going value. In fact, it is no more pertinent in discussing going value than in considering land or any physical evidences of prudent investment, for, logically applied, going cost is not concerned with *all* deficits, but merely with that necessary and ordinarily unavoidable aspect of the situation, namely, the waiting costs involved in the development of the average utility property.

Of all the valuation theories, the standard of prudent investment seems most closely in harmony with both the practical and theoretical aspects of the going cost hypothesis. The computation of going cost under such a standard, particularly in the case of newer properties, is more nearly in accord with actuality than in the case of other valuation standards.

Going Cost and the Cost of Reproducing the Present Property at Present Price Levels

Reproduction cost has been construed in innumerable ways. It is a term which has been used to mean, for example, simply the cost of reproducing the present property at present price levels, thus giving effect to the changing value

of the dollar. Likewise, it has been construed to mean the cost of reproducing the service by means of the most efficient and economical substitute plant. Reproduction cost has also been used to refer to present replacement at historical or actual prices, and to a variety of other combinations of these and similar ideas. In these theories two fundamentally different groups of premises are to be found. The first variant of the theory avoids entirely the market value and even the competitive price theories. It attempts merely to assign a "present value" in the sense of giving effect to the changing value of money. It may be defined as the present cost of replacing the existing property of the utility under prevailing general price levels (as measured by general rather than special purpose indexes), the object being to give effect to the changing value of the dollar rather than to changing *real* costs of manufacturing various items of public utility equipment.[15]

A second group of reproduction cost theories seem to be premised upon the competitive price idea, since they build on estimates of the hypothetical value of the utility under conditions of assumed competition. An attempt is made to avoid the vicious circle of market value as a basis of earnings, by pointing out that regulation is simply an artificial substitute for competition in a field where actual competition does not maintain itself. As such a substitute, it is argued that an attempt should be made to find a rate-base which represents as nearly as possible the value that would exist if adequate competition did actually take place.[16]

In connection with reproduction cost theories premised upon the idea of giving effect to changing general price levels, going cost should first be determined as an actual historical amount, if it is possible to do so. Then logically the changed price levels or value of money should be taken into account (as it is in valuing the physical plant). The original going value as a cost should be modified by making as accurate allowance as possible for the rise or decline in money values since the going cost was sustained. This variety of reproduction cost concept is premised upon the idea of giving weight to changing price levels, and hence the real or non-monetary changes in the costs of utility equipment, as indicated by special price indexes of utility equipment, need not receive consideration. It is not necessarily a market concept, for a market or exchange value theory is much more logically used in connection with the cost of reproducing the service, which involves not necessarily a reproduction of the existing plant, but the building of the best and most economical plant capable of rendering the same service.

In computing going value or cost on the basis of reproduction cost in the

[15] This differs from Professor Bonbright's recent definition of prudent investment, measured by means of a general cost of living index, chiefly to the extent that present property and plant, rather than investment is considered. See J. C. Bonbright, "Economic Merits of Original Cost and Reproduction Cost," 41 *Harvard Law Review* 593 (March, 1928). No different problem would be presented under such a theory. Going cost as computed under the investment standard might well be changed in accordance with changes in the selected general price index.

[16] Professor Bonbright classifies (see *supra* n. 15) reproduction cost theories as they relate (1) to present value of the physical plant as distinct from the value of the going business; and (2) the "competitive-price" rate-base, or the cost of reproducing the service. This distinction seems rather strained. In both he assumes that account would be taken of obsolescence and factors of practical market significance. The line of difference seems to be that in the first "cost of reproduction is used as a measure of the 'present value' of the property," while in the second it is viewed "as a measure of 'competitive price'." Professor Bonbright emphasizes the greater implications and more sophisticated bases of the second interpretation, although he apparently realizes the rather forced nature of the differentiation.

sense of changed general price levels it may often prove unnecessary and unjustifiable to delve into the earliest records of old companies and bring to light all the deficits of years past. To do so would often be no more logical than to discover and add to the present rate-base all the machinery and equipment purchased in past years, but long since replaced and removed from service. Only the return not received in the development of the present "going concern" need perhaps be found. Many old plants have a long history of organization and reorganization, as, for example, the history of a gas plant, later taken over by an electric utility, the entire equipment of which has been junked several times by reason of economic depreciation, and the ownership of which has been changed several times. In finding the present rate-base of the existing plant as a "going concern" there would appear to be little reason for parading the skeletons of distant and superseded cycles in the history of the utility in order to establish the present rate-base of the organization, certainly not when reproduction cost is the valuation standard which is being applied. Age alone does not condemn such allowances, but the practice of allowing for going cost may be made ridiculous by going too far into the ancestry of the present concern. In the actual application of valuation principles, practical considerations may often be paramount.

Going Cost and the Cost of Reproducing the Service Standard

Under this theory, the primary purpose is to ascertain, not the cost of reproducing the property, but the cost of reproducing the service rendered by the most efficient means possible. This general theory has been supported by several writers[17] on the ground that the purpose of regulation is simply to act as a substitute for competition in depriving utilities of the power to charge a monopoly price. Under competition, prices of goods and services normally tend toward their cost of reproduction. Therefore, it is argued, rates should represent as nearly as possible the amount which would be sufficient to induce a new company to incur capital costs (contribute a rate-base) to the amount necessary to reproduce the service.

The extremely forced character of this method should be apparent. Actually, if a competing utility were to be placed in operation, the naturally monopolistic character of public service industries would assert itself. Presumably, the cost of competition for control of the market would result in an extremely high going cost, the extent of which it would be impossible even to estimate. On the other hand, by a use of the so-called "substitute plant" method, going cost would ordinarily be much lower than going cost as an historical amount, for the assumptions of present conditions and an already "educated" consumer public imply a much shorter and less costly development period.

The merits or demerits of valuation theories are not within the scope of this discussion. It is sufficient for our purposes to point out that the cost necessary to develop the business of a new or competitive utility would certainly be considered by prospective entrepreneurs in this field. Going cost in this case would represent the practical disadvantage of the plant without the business attached, as contrasted with one

[17] Notably by H. G. Brown, "Railroad Valuation and Rate Regulation," 33 *Journal of Political Economy* 505 (1925); and F. G. Dorety, "The Function of Reproduction Cost in Public Utility Valuation and Rate-Making," 37 *Harvard Law Review* 173 (1923).

in possession of a "going business" as well as a "going plant." The cost actually incurred in developing the business of the utility would be significant only in so far as this might be useful in estimating how much it would cost the hypothetical competitive plant to develop to an equal level. By assumption, this amount would include only that portion of the cost of developing the business which had to be borne by the hypothetical or "substitute" utility itself. This is obvious considering that a normal competitive rate is being sought —one which is sufficient to compensate the cost of production which must be met by those engaging in production. This would necessarily eliminate those portions of the cost of developing new business which resulted neither in loss nor in the foregoing of income by the hypothetical competitive utility.

The various "substitute plant" methods of computing going value have in the past attracted considerable attention. Estimates arrived at by such methods have been almost uniformly rejected as unduly hypothetical and problematic in character. Similar theories regarding the acquisition and condemnation costs of land have been uniformly refused.[18] However, criticism might better be levelled at the theory of valuation involved, rather than at what appears, to the writer at least, to be simply the consistent application of the original premises of this theory of valuation.

A highly ingenious method of computing going cost has been advanced which possibly is in greater harmony with actuality.[19] By this method (which its proponents urge as especially adaptable in the case of an electric utility) the development cost would be arrived at by taking the cost of attaching business in the case of extensions and enlargements of the same or comparable electric plants. The proponents of this suggestion point out that utility properties, particularly electric properties, are developed piecemeal. Therefore, they argue, it is logical to take the ascertainable cost of attaching business in the case of extensions, and transpose such an estimate as a basis for determining the going value of the entire plant.

This method has the virtue of being fairly concrete. However, it is difficult to understand how such a method could be entirely depended on in determining going cost on the basis of the cost of reproducing the service. Obviously, the reproductive cost of the entire service at the time of the valuation would not ordinarily be analogous in difficulty and expense to that of attaching new business to the last attempted extensions or enlargements of the plant.

Another method that may be mentioned is that of capitalizing the difference in the yield to investors of the securities of a well developed plant and a new plant of a comparable nature.[20]

The difficulty of applying any of these methods rests fundamentally upon the extremely hypothetical nature of this theory of valuation. Only unreal methods of computing going cost can be devised to coincide with a valuation theory

[18] Compare the famous declaration of Justice Hughes in the *Minnesota Rate Cases:* "Moreover, it is manifest that an attempt to estimate what would be the actual cost of acquiring the right of way, if the railroad were not there, is to indulge in mere speculation. The railroad has long been established . . . the assumption of its non-existence, and at the same time that the values that rest upon it remain unchanged, is impossible and cannot be entertained." 230 U. S. 352 at 452 (1913).

[19] See H. P. Gillette and A. S. Malcomson, "Development Cost of an Electrical Property," *Annalist*, February 4, 1927.

[20] For a brief discussion of this method, see M. C. Waltersdorf, "Going Value in Utility Valuation," 17 *American Economic Review* 26 (February, 1927).

which itself rests upon what are, in the case of public utilities, the highly problematic and fictitious assumptions of market and competitive value and price.

Suffice it to say that the computation of going cost, to be consistent with this view of valuation, must assume present conditions, present costs and an already educated consumer public. Obviously, going cost under such a theory would shrink in importance as compared with going value or cost as computed under the other valuation theories, unless it were intended to estimate the cost of actually developing a competitive plant.

Going Cost and the Historical or Actual Cost Standard

The "actual," "original", or "historical" cost standard of valuation involves applying *original* cost to the *present* property in its *present* physical condition. It does not apply present prices, but neither does it disregard the present physical status of the plant and consider only the investment that has been made in establishing the going concern. Obviously, such a method involves a compromise between the reproduction and investment points of view in valuation theory.

As far as the consideration of going cost under such a valuation standard is concerned, the analysis, except for one distinction, is the same as that applied under those aspects of reproduction cost theory which were first considered. Under a reproductive cost basis, a going cost allowance should logically take account of changed price levels if such exist at the time of valuation. Considered from the standpoint of actual historical cost this is, of course, unnecessary. The analysis in either case is similar to that which should be applied to all items of property, tangible or intangible, which are to be included in the final valuation figure. It varies from the investment basis in that present property and the present aspects of the going business, rather than the total prudent investment of capital funds useful in serving the public, are given consideration.

Going Cost and Valuation Standards: Conclusion

Going value or cost has been considered simply as it may logically and consistently be recognized in conjunction with the principal theories or standards of valuation now advocated. This treatment of the question, though admittedly theoretical, seems to the writer to be justified for purposes of clarity.

However, a clear distinction should be drawn between what is logical and what is practicable. The justification for including any allowance for going value in the rate-base involves practical considerations. In order to secure effective co-operation in rendering public utility services, the equitable adjustment of the sometimes conflicting interests of stockholders, bondholders, consumers and others necessitates some allowance for going value. The exact measurement of that allowance likewise involves practical considerations that cannot be ignored, and difficulties that often seem to defy confinement within general rules. But it can hardly be gainsaid that this emphasis on the practical aspects of the problem tends often to stimulate a capricious or blind use of the concept of going value. Accordingly some attention to the logical implications and applications of the concept seems warranted, especially in the light of the currently urged standards of valuation,

the relative merits of which have not been discussed in this article.

On the other hand the writer has not intended to imply that expediency would always advise strict application of the principles suggested for consideration in the analysis of going value or cost under the various standards of valuation. Regulatory procedure, particularly when concerned with the ex post facto aspects of the valuation problem, obviously cannot apply theoretical analysis unreservedly; it is, and perhaps must continue to be for some time to come, largely a series of compromises and balancing processes. All this, however, certainly does not imply that the logical issues involved should not be recognized clearly.

Yet one may well ask where the line should be drawn if neither rigorous logic nor thoroughgoing pragmatism are wholly satisfactory techniques when applied unreservedly. At least as regards going value, both are necessary, and their proper balancing in each case is a matter which each regulatory official must decide for himself. The writer merely contends that the application of pragmatic tests alone may give us planless regulation as the application of logical tests alone may result in ineffective regulation. The balancing of the two techniques is essential to scientific regulation. Especially in treating intangible items like going value or cost, the method of logic seems rather neglected but needed.

COSTS AND ENCUMBRANCE RATIOS IN A HIGHLY DEVELOPED REAL ESTATE MARKET

By H. MORTON BODFISH AND A. C. BAYLESS [1]

LENDERS who deal in urban credit are concerned with individual loans and furthermore their activities are usually confined to a single type of encumbrance, such as first mortgages. Hence, they ordinarily do not have a cross-section picture of the relation which any particular type of encumbrance, treated as a class, bears to other elements or classes of encumbrance in the transaction.

The purpose of this study of the Chicago market was to examine the relationships between different classes of encumbrances, each class being treated as a whole, from the standpoint of ratios of encumbrances to value and of financing costs. The value used was the consideration in a recent sale, checked for accuracy in various ways.[2]

The Chicago market is designated as "highly developed" because of the large number of established agencies for lending on real estate. Practically all the banks have real estate loan departments and there is some building and loan activity.[3] Most of the middlemen in the real estate market either lend their own funds or act as brokers in arranging loans from the numerous mortgage companies and banks. Several second mortgage houses have reached great size and even the Morris Plan Bank lends on second mortgage security.

Scope and Method of the Study

The real estate market has frequently been described by such terms as "frenzied finance," "high finance," and "shoestring equities." Therefore, a quantitative analysis of financing costs, encumbrances, and equity ratios is most appropriate and this investigation, it is hoped, will throw light on the actual conditions in the Chicago market with regard to these items of real estate financing. This study does not deal with the historical aspects of real estate credit development but analyzes quantatively the financing costs in a particular area at a particular time.

The data in the study were gathered by direct letter, supplemented in some cases by personal interviews, physical inspection, and tax assessment records. All cases were checked by means of the revenue stamps as to total consideration and the exact type of use was ascertained from Sanborn Insurance Maps of Chicago. The mailing list was compiled from the realty transfers as recorded weekly in the *Economist*.[4] All the transfers during the first half of 1925

[1] The sales and finance data for this study were collected by Mr. Arthur C. Bayless, Henry Strong Scholar in Urban Land Economics at Northwestern University, 1926-7, under the direction of Dr. H. D. Simpson, of the staff of the Institute for Research in Land Economics and Public Utilities.

[2] The limitations of selling prices as guides to value are familiar to all interested in real estate. Such conditions as tax sales, auction sales, and boom prices are not found in the cases treated in this paper. Forced sales or over-speculative purchases cannot be eliminated but the effect of such transactions is submerged in the number of cases considered, justifying the premise that the sample represents market valuations, which after all are our best measures of real estate values.

[3] On December 1, 1926, Building and Loan Associations in Chicago and Cook County held loans totaling $101,252,842.75. These are almost exclusively on real estate. See the *35th Annual Report*, Mutual Building, Loan and Homestead Associations, State of Illinois, by Oscar Nelson, Auditor of Public Accounts.

[4] Each week the *Economist*, a Chicago weekly dealing with financial, commercial, and real estate information, publishes a list of realty transfers, giving the names of buyer and seller, the location of the property, the encumbrances, and before January 1, 1926 the amount of revenue stamps.

in which the addresses of buyers and sellers were obtainable were included.

In this manner complete information was obtained on 325 transfers, all located in Chicago and all transferred during the first half of 1925. The reader must constantly keep these two facts in mind; that the data in this study describe the Chicago area only and that the transactions analyzed took place during the first half of 1925. Substantial changes may take place in a relatively short time in that portion of real estate financing in which rates and practices are not institutionalized and therefore little standardized.[5]

The reported cases presented wide variety in sale consideration, and included properties in different uses. In regard to use they were divided into four classes: (1) Homes, (2) Apartments, (3) Retail Stores, and (4) Unclassified Uses. The first three classes need no explanation. The fourth, Unclassified Uses, includes some vacant property together with industrial and miscellaneous uses.

The total sales value of the 325 cases studied was $13,476,296. Table I shows

TABLE I. VALUE AND CLASSIFICATION OF THE 325 CHICAGO PROPERTIES, 1925

Type of Property	No. of Cases	Percentage of All Properties Studied	Total Value	Percentage of Total Value of Properties Studied
Total.....	325	100.0	$13,476,296*	100.0
Homes.....	77	23.7	1,401,350	10.4
Apartments..	116	35.7	5,085,905	37.5
Retail.....	56	17.2	2,943,600	21.8
Unclassified..	76	23.4	4,075,441	30.3

* Cents omitted in all tables in this article.

the number and value of the properties in each of the four groups. Of the 325 properties investigated only 28, or 8.6%, were unencumbered, of which 4 were homes, 7 apartments, 3 retail stores, and 14 in the unclassified group.

[5] For example, the largest second mortgage company n Chicago has reduced its discount rates on junior lien paper approximately 2% since the data used in this study were collected.

The relatively small number of properties free from encumbrance is to be expected as attention is centered on analysis of recent transfers rather than a study of the conditions of home ownership. In most sales credit plays an important part and, as all the properties have been recently transferred, these facts explain the paucity of unencumbered properties in the cases investigated.[6]

The financing of urban realty falls into two distinct divisions, first mortgage financing and junior financing. After considering the relations of liens and equities to sales value, this paper will consider first the financing through first mortgages, then the two chief methods of junior financing by second mortgages and land contracts.[7] The uncertainness of the vendibility of real estate is one influence causing new capital to flow into fields where investment funds can be withdrawn more easily. This same uncertainty affects the amounts loaned or encumbrance ratios where property is pledged to the payment of loans. The current rule-of-thumb principles are: "Conservative firsts never exceed 50% of the market value" and "seconds should not pass the 75% mark." The following material treats quantitatively the ratios in the cases reporting encumbrances.

I

The Relation of Liens and Equities to Sales Value

Liens and Equities on all Properties. Considering all the encumbered properties without classification, the first

[6] The 1920 United States Census *Monograph* 11, p. 65, shows that 63.8% of the homes in Chicago were mortgaged in 1920, whereas only 43.2% of the homes were mortgaged in 1890.

[7] Third mortgages are a form of junior financing but only one case of the 325 reported a third mortgage.

mortgage amounted to 51.9% of the total sales value of properties so encumbered. Second mortgages represented 21.6% of the sales value of those properties pledged for this type of junior lien. The amount in land contracts above prior encumbrances was 27.6% of the sale consideration of the properties so encumbered.[8] These figures are significant in so far as they indicate the portion of value generally covered by these liens.[9] It is more significant, however, to compare the relations of equities and encumbrances to sales values by classes of property and types of encumbrance.

Liens and Equities on Homes. This type of property represents the ideal of home ownership, which is one of the prime purposes of real estate credit. One would expect to find lower ratios of owners' equity to sales value resulting from the imputed safety of such loans and the social desirability of such ownership.

Table II presents the 77 cases of home transfer. Classifying according to encumbrances, the considerations involved ranged from $8,000 to $145,000 with a modal grouping around $15,000. The simple average sales value was $18,199. These facts attest the representative nature of the sample for the Chicago area. The table indicates that first mortgage financing on homes is conservative, as the properties with only one encumbrance have owners' equity of 49.5%. Where junior liens are employed, the first mortgages represent a lower portion of the total sales value, namely, 41.3%. In the 34 cases where the only junior lien was a second mortgage, it amounted to 23.4% of the sale value. In the four cases in which the junior encumbrance was a land contract the first mortgage was still more conservative, 33.2% of the sales value, and the land contract was 40.7% of the sale consideration, leaving an owners' equity of 26.0%.[10]

[8] A land contract is a contract for a deed and therefore the title is not transferred to the purchaser, although he has possession, until the buyer has paid the seller an agreed amount, at which time the seller conveys. In ascertaining the proportion of the value of land contracts to sales value, the amount of mortgage liens senior to the contract are subtracted to find the portion of the value resident in the land contract.

[9] Of the total sales value of the 325 properties (thus including unencumbered) first mortgages represent 46.9% of the total sales price, second mortgages 1.7%, and the owners' equity was 43.3%. The limitations of such a mass calculation are obvious because of the lowering of ratios by inclusion of unencumbered properties, and the mixing of properties with different types and numbers of encumbrances.

[10] It should be remembered that the base for computing the ratios is the total sales value or consideration at

TABLE II. RATIOS OF ENCUMBRANCES AND OWNERS' EQUITIES TO SALES VALUES OF 77 HOMES, CHICAGO, 1925

Types of Encumbrance	No. of Cases	Sales Price of Property	Percentage of Owners' Equity	Encumbrances					
				First Mortgage		Second Mortgage		Land Contract	
				Amount	Percentage of Sales Price	Amount	Percentage of Sales Price	Amount	Percentage of Sales Price
Total	77	$1,401,350	.....	$614,125	.....	$132,400	.....	$22,800	.....
First and Second Mortgage	34	567,800	35.4	234,500	41.3	132,400	23.3	.....	.....
First Mortgage and Land Contract	4	56,000	26.1	18,625	33.2	.....	.....	22,800	40.7
First Mortgage	35	714,300	49.5	361,000	50.5	.....	.....	.....	.....
No Encumbrance	4	63,250	100.0	.....	.....	.....	.....	.....	.....

The substantial owners' equities averaging from 26% to 49.5% give little support to general accusations concerning shoestring financing as applied to this class of property.[11] Comparing the home owners' equities with later tables showing similar calculations for the apartment group supports the idea that lenders will accept narrower margins on income property than on residences. The justification of this tendency is that in case of foreclosure the income property continues to operate and bring in rentals, whereas the residence must be rehabilitated and sold by the mortgagor.

Liens and Equities on Apartments. In this class of property there were greater divergencies in the number and kind of encumbrances than were found in connection with the other type of property. The data for 116 cases are shown in Table III. In the eight cases with three encumbrances it is significent to note that the owners' equity was 29.6% where a land contract was a third lien, and 35.5% where a third mortgage was the last encumbrance.[12]

(Footnote 10 continued)

which the property sold. There is little reason to suppose that the maker of the first mortgage will act more conservatively in the case of a land contract sale than in the case where there is one or more additional encumbrances. The first is generally placed previous to sale and other liens. This being the case, there is evidence in the 33.2% ratio that the sales price is increased to offset long-time carrying charges or the high cost of immediate discount in the junior liens. However, the above generalization is based on four cases and therefore should not be regarded as a conclusion supported by ample data. The discounting of land contracts has been stimulated by the government interpretation of the Revenue Acts, designating the total value of a land contract as income to the holder during the current year. This has discouraged the holding to maturity of the contracts. The National Association of Real Estate Boards through its counsel is attempting to have a portion of the Revenue Act revised to permit holders of contracts to return only the annual income.

[11] The use of "averaging" is permissible as the ratios apply to each group including all the properties in the group. However, aggregating all at their dollar sales consideration might give undue weight to the large items in the distribution. This possibility was tested by computing individual ratios for each property in several of the groups and the ratios thus obtained were averaged and gave resulting ratios only slightly under the ratios computed by using the group totals. Further refinements of these data are in process and will be published later as a research summary. Individual ratios are being calculated which, arrayed in frequency distribution, will indicate the deviations from the modal or average ratios.

[12] Eight cases are a small number on which to generalize but in any 116 transfers one would probably not find a greater proportion of third liens.

TABLE III. RATIOS OF ENCUMBRANCES AND OWNERS' EQUITIES TO SALES VALUES OF 116 APARTMENTS, CHICAGO, 1925

TYPES OF ENCUMBRANCE	NO. OF CASES	SALES PRICE OF PROPERTY	PER-CENTAGE OF OWNERS' EQUITY	ENCUMBRANCES							
				First Mortgage		Second Mortgage		Land Contract		Third Mortgage	
				Amount	Percentage of Sales Price	Amount	Percentage of Sales Price	Amount	Percentage of Sales Price	Amount	Percentage of Sales Price
Total	116	$5,055,905	.....	$2,684,500	.....	$636,465	.....	$54,800	.....	$19,800	.....
First, Second and Third M'tgage	4	162,300	35.5	52,000	32.0	32,870	20.3	.....	.....	19,800	12.2
First and Second Mortgage and Land Contract	4	278,000	29.6	129,500	42.6	52,500	18.9	24,800	8.9	.....	.....
First and Second Mortgage	68	2,848,380	26.0	1,559,000	54.7	551,095	19.3	.....	.....	.....	.....
First Mortgage and Land Contract	2	53,000	16.7	29,500	46.8	.....	.....	23,000	36.5	.....	.....
First Mortgage	30	1,527,350	40.1	914,500	59.9	.....	.....	.....	.....	.....	.....
Land Contract	1	9,000*	33.4	.....	.....	.....	.....	7,000	76.6	.....	.....
No Encumbrance	7	167,875	100.0	.....	.....	.....	.....	.....	.....	.....	.....

* Only two instances of complete financing by land contract, without underlying mortgages, were reported in the study. The second instance appears in Table V and involves the transfer of a vacant lot in which the contract covered the full value of the property.

TABLE IV. RATIOS OF ENCUMBRANCES AND OWNERS' EQUITIES TO SALES VALUES OF 56 RETAIL PROPERTIES, CHICAGO, 1925

TYPES OF ENCUMBRANCE	NO. OF CASES	SALES PRICE OF PROPERTY	PERCENTAGE OF OWNERS' EQUITY	ENCUMBRANCE			
				First Mortgage		Second Mortgage	
				Amount	Percentage of Sales Price	Amount	Percentage of Sales Price
Total	56	$2,943,600	.....	$1,542,600	.....	.....	.....
First and Second Mortgage	25	1,043,050	32.8	519,300	49.8	$181,350	17.4
First Mortgage	28	1,866,050	45.2	1,023,300	54.8	.....	.....
No Encumbrance	3	34,500	100.0	.....	.....	.....	.....

Properties with two encumbrances, a first and second mortgage, show a higher percentage of sales value in the first mortgage (54.7%) than was observed in the case of homes (41.3%). Still comparing the two-encumbrance cases, the second mortgage on homes and apartments differed only 4% in the ratio of this encumbrance to total sales price. The owners' equity was almost 10% lower in the case of apartments as compared with homes.

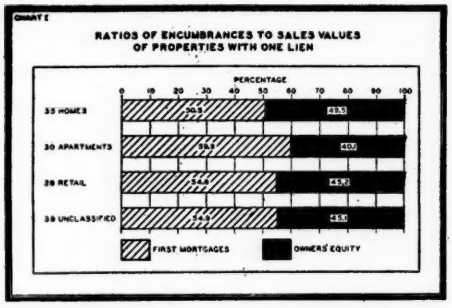
Apartment properties with only one mortgage had the highest ratio of loan to sales value, 59.9%. With the exception of the two cases where land contracts were used as junior lien, the owners' equities ranged from 26.0% to 40.1%.

Liens and Equities on Retail Property. The 56 properties in this class did not include any with more than two encumbrances and there was a complete absence of the land contract. Table IV summarizes the information on retail establishments. The first mortgage ratios are very close to the conventional 50%, with second mortgages averaging 17.4% of sales values of properties so encumbered, leaving substantial owners' equities.

Liens and Equities on Unclassified Property. Table V shows 76 cases of vacant, industrial and miscellaneous properties. The encumbrance groups all show substantial owners' equities, varying from 27.5% with three liens, to 45.1% on properties with a single lien. It is important to note that the 38 cases with one encumbrance include a number of vacant properties and yet the percentage lent exceeds the conventional

TABLE V. RATIOS OF ENCUMBRANCES AND OWNERS' EQUITIES TO SALES VALUES OF 76 UNCLASSIFIED PROPERTIES, CHICAGO, 1925

TYPES OF ENCUMBRANCE	NO. OF CASES	SALES PRICE OF PROPERTY	PERCENTAGE OF OWNERS' EQUITY	ENCUMBRANCE					
				First Mortgage		Second Mortgage		Land Contract	
				Amount	Percentage of Sales Price	Amount	Percentage of Sales Price	Amount	Percentage of Sales Price
Total	76	$4,075,441	.....	$1,581,304	.....	$148,450	.....	$128,500	.....
First and Second Mortgage and Land Contract	6	273,500	21.5	98,500	36.1	38,500	14.1	61,000	22.3
First and Second Mortgage	17	611,100	44.0	232,450	38.0	109,950	18.0	.....	.....
First Mortgage	38	2,278,341	45.1	1,250,354	54.9	.....	.....	.....	.....
Land Contract	1	67,500	.....	.....	.....	.....	.....	67,500	100.0
No Encumbrance	5	845,000	100.0	.....	.....	.....	.....	.....	.....

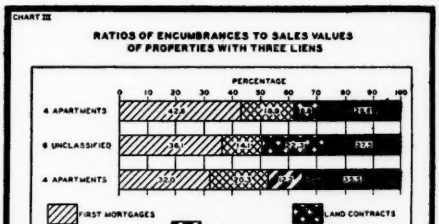


50.%.[13] This may result partly from a highly developed real estate finance market or from anticipation of increased value entering into consideration. It should be recalled in this connection that the data in this study are a year and one-half old, which places them in a relatively optimistic era, when a number of civic improvements as well as major construction efforts were projected.

Graphic Comparisons of Encumbrance Ratios

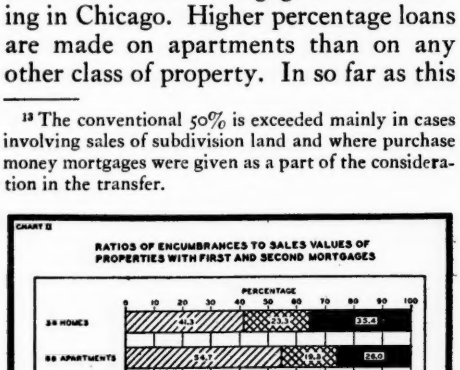
The comparison of the various types of properties which were encumbered with only a first mortgage is shown on Chart I. This chart emphasizes the conservatism of first mortgage home financing in Chicago. Higher percentage loans are made on apartments than on any other class of property. In so far as this sample is representative it would seem that the opportunities for soliciting first mortgage loans successfully are greater in homes than in the other classes of property.[14]

Chart II includes those properties with first and second mortgages only. The low percentages of first mortgages on homes and unclassified properties contrast with the figures for the apartment and retail groups in which are found proportionally more second mortgages. The portion of value represented by the second mortgages does not vary appreciably and the owners' equities are lowest in the case of apartments.[15]



The 14 properties encumbered with three liens are summarized in Chart III. In spite of the number of encumbrances the owners' equities were substantial

[13] The conventional 50% is exceeded mainly in cases involving sales of subdivision land and where purchase money mortgages were given as a part of the consideration in the transfer.



[14] The amounts of money available for real estate lending are such at present that brokers and mortgage institutions are actively soliciting loans. Two years ago the borrowers were seeking the lenders. These statements are based on interviews with several mortgage brokers in the Chicago market.

[15] Six properties with two encumbrances, a first mortgage and a land contract, are not shown graphically. Four were homes on which the first mortgages were 33.2% of the sales value, the land contracts, 40.7%, resulting in an owners' equity of 26.0%. Two apartments were similarly encumbered, the firsts amounting to 46.8% of sales value; the land contracts, 36.5%; and the owners' equity was 16.7%. The conservatism of the first mortgages should be noted where junior liens are present, especially in the case of homes. A possible interpretation would be that the transaction values were high in order to take care of carrying charges for the land contracts.

TABLE VI. LENGTH OF TERM OF FIRST MORTGAGES REPORTED ON 284 CHICAGO PROPERTIES, 1925

TYPE OF PROPERTY	No. OF CASES	DURATION IN YEARS									
		1	2	3	4	5	6	7	8	9	10 AND OVER
Totals	284	8	20	39	10	190	4	6	1	1	5
Homes	70	0	4	5	2	57	0	1	0	0	1
Apartments	106	1	3	15	4	76	2	4	0	0	1
Retail	50	3	4	3	2	32	0	1	1	1	3
Unclassified	58	4	9	16	2	25	2	0	0	0	0

in all cases. This fact may be due to inflated transfer considerations, although, if this were true, one would expect the third lien to represent a more important portion of the sales price and the owners' equities to be less.

II

Terms and Costs of Encumbrances

Changes in property values resulting from depreciation, obsolescence, or migrating districts make mortgage investments precarious.[16] In first mortgage financing there are two ways of providing against loss through value changes: (1) The mortgage may be made for a short period, thus giving the lender an opportunity to recover his capital before great change has taken place; (2) The mortgage may be made for a long period with an amortization clause, providing for monthly, semi-annual or annual payments in addition to interest, which payments reduce the amount of the obligation.[17]

First Mortgage Financing. The first factor affecting cost is the length of time for which the mortgages are drawn. In the tabulation dealing with cost conditions all 295 cases of first mortgage encumbrance cannot be included as the terms were not obtainable in 11 instances.[18] Table VI shows the terms for 284 cases classified into homes, apartments, retail properties and unclassified uses. The most common term of the cases studied is five years, and this holds true for all four classes of property. The table also indicates that 77 of the mortgages not found in the modal group were for periods less than five years and only 17 exceeded the five-year period.

The second factor in the cost analysis of first mortgage money is the rate of interest charged. Six per cent was by far the most prevalent interest rate on first mortgages at the time of investigation; 85.1% of the cases reporting showed this rate. (Table VII). Only 2 cases showed interest rates under 6%, while 41 cases carried an interest rate of more than 6%. There were no cases with an interest rate above 7%.

TABLE VII. RATES OF INTEREST PAID ON FIRST MORTGAGES ON 290 CHICAGO PROPERTIES, 1925.

TYPE OF PROPERTY	No. of Cases	RATES OF INTEREST			
		5.5%	6.0%	6.5%	7.0%
Total	290	2	247	29	12
Homes	72	1	65	5	1
Apartments	108	1	83	19	5
Retail	52	0	45	4	3
Unclassified	58	0	54	1	3

[16] This is more true of the junior liens than of the first mortgage. It is a factor not to be neglected in the first liens even though they usually equal only half the value of the property at the time of the loan.

[17] This method is more generally insisted on by financial institutions than by individual lenders. In fact, amortization is the very heart of the lending plan of building and loan associations.

[18] Two properties were encumbered with land contracts only, and 28 were clear. The 295 loans totaled $5,422,529.

TABLE VIII. COMMISSIONS PAID FOR PLACING FIRST MORTGAGES ON 101 CHICAGO PROPERTIES, 1925

TYPE OF PROPERTY	No. OF CASES	NUMBER OF INSTANCES AT DIFFERENT PERCENTAGE RATES OF COMMISSION											
		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	Over 6.0
Total	101	3	1	7	9	39	12	9	0	11	5	1	4
Homes	36	2	1	2	6	12	4	4	0	2	1	0	2
Apartments	41	0	0	2	3	19	5	3	0	5	4	0	0
Retail	15	0	0	2	0	5	2	1	0	3	.....	1	1
Unclassified	9	1	0	1	0	3	1	1	0	1	0	0	1

The third factor in determining the cost of first mortgage financing is the commission paid to lenders or agents of lenders negotiating the loans. While commissions are fairly common, they are by no means universal. The insurance companies do not charge commissions on many of their loans in the Chicago area, nor do former owners, when they accept a mortgage as part of the sale consideration, charge the mortgagor any commission. Table VIII shows that commissions were reported for only 101 of the 295 first mortgages. However, in some cases individuals probably failed to report the commissions charged. The modal rate of commission was 3%, the rates ranging from 1% to 10%.[19]

The cost of first mortgage money, where commissions were charged, was calculated by dividing the total amount of the commissions paid by each class of property by the total amount of the mortgages reporting commissions in that class. (Table IX.) The fact that over one-third of the owners reporting first mortgages reported commissions indicates that an average cost per dollar, where commissions were charged, ought to show the cost of a fairly large portion of the first mortgage money in Chicago for the period under consideration.[20]

The total annual interest on all first mortgages reporting commissions was $157,043, or an interest rate of approximately 6.2%. The total of the com-

[19] The explanation for several extremely high commissions probably is that such charges are exacted occasionally where a dealer in building materials negotiates or furnishes the first mortgage money. Mortgages obtained by repugnant racial groups or mortgages bearing interest rates below the market rate are often subjected to large commissions. The rights of borrowers under the usury laws cannot be discussed within the limits of this paper, but the courts and the Illinois Code attempt to prevent such charges from being enforced.

[20] In some cases commissions are disguised in excessive service fees in connection with the loan, so that the borrower does not know his costs in regard to their apportionment between expenses and commissions.

TABLE IX. PERCENTAGE OF FIRST MORTGAGES PAID IN COMMISSIONS ON 101 CHICAGO PROPERTIES, 1925

Type of Property	Number of Mortgages Reporting Commissions	Total Amount of Mortgages Reporting Commissions	Amount of Commissions	Percentage of Full Amount of Mortgage Paid as Commissions
Total	101	$2,534,225	$123,684	.....
Homes	36	367,575	8,691	2.4
Apartments	41	1,162,000	50,533	4.3
Retail	15	748,000	54,554	7.3
Unclassified	9	256,650	9,906	3.9

missions paid for obtaining these mortgages was $123,684. Taking the modal duration period for first mortgages, namely five years, and distributing the commissions over the five-year period the annual cost would be $24,737 or approximately 1% per year for commissions.[21] The commission cost expressed in terms of years added to the computed annual interest of 6.2% results in a yearly cost of first mortgage money[22] of 7.2%.

Second Mortgage Financing

Second mortgages as a class are more hazardous than first mortgages, but how much more is a disputed question. The cost analysis in this study will not indicate the degree of risk other than to measure the market valuation of that risk, which, in turn, may be influenced by other factors than the risk item. Doubtless the responsibility of the holder of a second mortgage to insure the payments of the prior mortgage through assumption of payments, in case of default or taking actual title to the property, causes the timid investing public to avoid this type of risk. In many communities the presence of building and loan associations and other agencies which exceed the conventional 50% first lien has retarded the development of the second mortgage risk-takers as an organized group [23] and a major financial institution. The second mortgage, despite the indictments of it, has broadened the real estate market and has often been the financial ladder by which the urban tenant climbs to complete home ownership.

The lack of standardization of rates and terms in second mortgages as contrasted with first mortgages is explainable. "The first mortgage is designed to meet in the highest degree the needs and desires of the lender; the lender pays for this in lower rates of interest. The second mortgage is designed to fit in the highest degree the needs of the borrower; this the borrower pays for in higher rates and commissions." [24]

Moreover, second mortgages are temporary financing expedients entered into without intention of renewal. Of the 325 properties included in the study 158 were financed by second mortgages. Of these 158 second mortgages, former owners took back 124 as a part of the purchase consideration. Therefore no cost analysis can be applied to this group as commissions are not charged on such obligations, and any cost of financing involved will be reflected in the total consideration. The total value of these mortgages was $811,395, making an average second mortgage of $6,543.50.[25] The remaining 34 mortgages were taken by other than former owners. They totaled $288,870 and averaged $8,496.18, possibly indicating that former owners tend to shift the large "seconds" to the mortgage companies and hold the smaller ones.

The length of term of the second mortgages suggests their temporary nature and gives a partial explanation for the

[21] Commissions are usually deducted from the face of the loan or paid outright by the borrower; thus the payment is made in advance for the whole period. Hence the borrower forgoes the use of the money paid out for commissions, a factor not adjusted in this simplified correlation which assumes distribution over the period of the loan. Figured more precisely the cost would be slightly higher than the figure given.

[22] This applies to the 101 mortgages which reported commissions.

[23] At the present time Chicago has over 80 business organizations which make a regular practice of lending on second mortgages.

[24] Robert S. Beach, Vice President of the Republic Realty Mortgage Co. of Chicago.

[25] The distribution of these obligations can be seen in Tables II, III, IV and V.

TABLE X. LENGTH OF TERM OF SECOND MORTGAGES REPORTED ON 145 CHICAGO PROPERTIES, 1925

Type of Property	No. of Cases	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.
Total	145	10	29	53	18	27	4	2	2
Homes	32	1	5	10	5	9	1	1	0
Apartments	70	6	8	29	9	14	1	1	2
Retail	21	1	72	7	2	2	2	0	0
Unclassified	22	2	9	7	2	2	0	0	0

high cost of this financing device. Table X shows the modal length to be three years for the 145 second mortgages on which this item was reported.

Tabular presentation is not necessary in regard to interest rates charged for these mortgages. Of the 158 reporting interest rates, 142 bore interest at the rate of 6%, 10 at 6.5%, and 5 at 7%. The rate of interest charged has very little bearing on the actual cost of second mortgage money because it is low and constant. The actual cost of second mortgage money is determined largely by two factors: the commission charged and the plan of repayment. Monthly repayments involving amortization of principal are characteristic of this type of financing. Such repayments were reported in 121 of the second mortgages. Table XI shows the amount of second mortgages with repayments, the amount of monthly repayments, and the average percentage repaid per month by each class. The amount of repayment per month for all classes of property was 1.9% for the 121 second mortgages.

The presence of amortization in second mortgages[26] in addition to commissions makes it necessary to take both factors into consideration. The first step in determining the true interest cost was to ascertain the average amount of money available to the borrower during the whole period of the mortgage. Obviously, the market cost of second mortgage money will be indicated by those mortgages which were not held by former owners. Therefore, only the 34 cases of mortgages taken by other than former owners can be considered. Of these, 28 reported details complete enough for cost analysis. The commissions charged in these 28 cases were deducted from the face of the mortgage at the time of placing, as is the practice in mortgage lending. The total amount of the repayments was determined and this amount was deducted from the remainder left when the commission had been deducted. Any balance left after the deduction of repayments and commissions was counted as having

[26] Absence of amortization in most Chicago first mortgage lending made the calculation of annual costs comparatively easy.

TABLE XI. AMOUNT OF MONTHLY REPAYMENTS REPORTED ON 121 SECOND MORTGAGES, CHICAGO, 1925

Type of Property	Number of Mortgages	Total Amount of Mortgages	Total Amount of Monthly Payments	Percentage Repaid Monthly
Total	121	$908,640	$17,212	1.9
Homes	32	134,325	2,568	1.9
Apartments	62	539,465	10,239	1.9
Retail	17	155,350	2,722	1.8
Unclassified	10	79,500	1,683	2.1

been used by the borrower for the entire period of the mortgage. The mortgagor has had no use of the money designated as commission and he has had use of only a portion of the repayments. The problem, therefore, was to ascertain the average time of borrowing for the money repaid previous to the repayment of the loan. As the repayments are equal in size, the mortgagor has had the use, during the full period, of a sum equal to one-half the total repayments.[27] The average amount available to the borrower during the life of the loan[28] is obtained by adding the amount used for the full period to one-half the amount of payments. By using the average amount available (as found above) as a base, the percentage representing the total cost can be determined. The commission cost plus total interest paid for the period divided by the length of the term in years gives the annual cost on borrowed funds with allowance for repayments.[29]

In computing the average cost of second mortgage money for each of the groups represented in the 28 cases, the total of the actual amounts available to the borrower was ascertained for each group as described above; likewise the commission costs and interest costs in dollars for one year were found, thus adjusting for the differing durations of the mortgages. From these two figures the percentage cost of second mortgages was computed. The same procedure was used on the whole group of 28 second mortgages. The data are shown in Table XII.

The apartment group dominated the sample with 16 cases and had a yearly cost for second mortgage money of 11.0%. With only 12 samples in the other groups too much emphasis should not be placed on the percentages obtained therein. The total cost using the ag-

[27] This method of calculation is satisfactory for the purposes of this study, although it involves a slight arithmetic inaccuracy. For the same reasoning applied to another problem see: Riegel and Doubman, *The Building and Loan Association*, (New York: John Wiley & Sons, Inc., 1927), p. 92.

[28] In case the loan is repaid previous to the contracted date the costs are still higher, as the whole commission must be charged to the shorter period.

[29] An example will show the method used to determine actual money cost of second mortgage money. Assume a $10,000 second mortgage bearing 6% interest for a term of three years, with repayment of $200 plus interest, commission at 10%.

The commission being paid in advance must be deducted from the face of the mortgage. Therefore the borrower received only $9,000 at the signing of the mortgage.

Face of the mortgage	$10,000	
Less commission, 10%	1,000	
Amount actually received	$ 9,000	
Monthly repayments	$200	
Three years' period	36	
Total amount of repayment	$7,200	
Portion mortgagor used without repayment (Face minus commission minus repayments)		$1,800
One-half of the total repayments		3,600
Average amount available to the borrower for the entire length of mortgage		$5,400

The last amount divided by total interest paid plus the commission, which quotient is divided by 3 (number of years), gives the true interest rate.

TABLE XII. COSTS OF 28 SECOND MORTGAGES REPORTING COMMISSIONS, CHICAGO, 1925

Type of Property	Number of Second Mortgages Reporting Commissions	Total Average Amount of Second Mortgage Money	Total Amount of Average Annual Charge*	Percentage Cost of Second Mortgage Money
Total	28	$152,475	$17,884.67	11.7
Homes	5	7,195	1,118.83	15.6
Apartments	16	99,180	10,904.59	11.0
Retail	5	30,800	3,051.15	9.9
Unclassified	2	15,300	2,810.10	18.4

* Interest and commission.

gregate figures for the whole group is significant, namely 11.7% per year for all the second mortgages reporting commissions. The cost of second mortgage money for homes, when owners do not take back the paper, is important because of the dependence of housing problems on real estate credit. This money cost 15.6% in the 5 transfers reported but the face amounts of the six obligations analyzed are small.[30]

For comparison with the second mortgage cost ascertained in the study of 28 cases, the terms of the Chicago Morris Plan Bank were submitted to cost analysis. Their charges for placing second mortgages are as follows: 1 year, 4% commission; 2 years, 7% commission; and 3 years, 10% commission. This is in addition to the legal expenses involved in the placing of the loan. This company requires a minimum monthly repayment of 2% of the principal and interest on the unpaid balance. After making correction for the repayment features and commission paid in advance, the cost of this second mortgage money for 1 year is 11.1%, 2 years 12.2% and 3 years 12.9%.

Land Contract Financing

The amount of this type of financing was apparently small at the time the data were gathered for this study. In the 18 cases reported (cases in the retail group), the percentage of value represented by land contracts to the total value of properties so encumbered was 27.6%. The underlying liens amounted to 37% for first mortgages, and 12.2% for second mortgages. The owners' equity was 23.2%. The low ratio of the first mortgage to the sale value suggests that the cost of carrying the junior liens is included in the sale price or that mortgage lenders are extremely conservative where there are to be later liens. The truth probably lies in the former.

All the land contracts reported the 6% interest charge which was typical of both first mortgages and second mortgages. Monthly payments on the unpaid principal are an essential part of the land contract agreement. The rate of repayment was approximately 1.2% monthly, with the borrower paying the interest in addition. No commissions were found for land contracts nor for the one third mortgage in the study. This fact suggests that in all cases reported these obligations were held by the former owner probably because of their unmarketability, as they were third liens in most of the cases.

III

Summary

A significant portion of this paper deals with the ratios of encumbrances and owners' equities to sales values in a number of actual transactions selected at random and as the information could be obtained from the present owners. These ratios indicate that at the time of the study the equities protecting the lenders were fairly ample.

The smallest owners' equities and the largest number of junior liens were in the apartment group. Lenders are willing to make greater proportional extensions of credit on this than on other classes of property. The reason is to be found in the fact that in case of default apart-

[30] Analysis of 5 second mortgages on homes on which complete data were reported.

Face Amount	Rate of Interest	Commission	Annual Cost of Money	Average Capital	Average Annual Cost
$ 2,500	6%	10.0%	17.2%	$1,125	$193.50
2,500	6	16.0	14.8	1,300	192.40
3,000	6	12.0	15.9	1,320	209.88
3,500	6	14.3	18.1	1,500	271.50
3,000	6	10.0	12.9	1,950	251.55
$14,500	.....	.....	.....	$7,195	$1,118.83

ment property can be possessed and operated by the mortgagee with a minimum risk of rental or income losses. The leasing of such units involves even less difficulty than in the case of business properties.

On the other hand, it is significant to note that the owners' equities in homes were consistently larger than the equities in any of the other classes of property, indicating that extensions of credit on homes are not as liberal as is generally supposed. This suggests the possibility that more building and loan activity is needed in the Chicago area.

First mortgage practices at the time this study was made were standardized with minor deviations. For example, 85.1% of the mortgages were drawn with 6% interest for a duration of five years or less. In spite of these ostensibly low interest rates, the five-year term which is relatively short for first mortgage lending, plus the commissions involved in obtaining loans causes the cost of first mortgage money to average 7.2% in those cases where commissions were paid.[31] The percentage of the full amount of the mortgage paid in commissions was lowest for homes (2.4%); highest for retail property (7.3%); with apartments occupying an intermediate position (4.3%). In comparison with other areas, the absence of long-time amortization methods is striking.

It is significant to note that the 7.2% average interest rate is usurious in the State of Illinois. The Illinois law does not consider, when a commission is received by the lender, whether it be in the form of interest or commission or both. It is usury if the average cost exceeds 7%. However, the penalty for usury is confined to loss of all interest and commission, any interest or commission paid being credited upon the principal. This legal situation is important in considering second mortgage lending where the risk elements are such as to necessitate a higher rate of return than 7% to attract any funds at all. Fortunately for this section of the mortgage lending business most borrowers meet obligations as a matter of principle rather than depending on legal compulsion. The developments with respect to this aspect of lending, which would accompany a real estate recession, offer material for interesting speculation to students of real estate practice.

In second mortgage financing there is a complete lack of standardization, with the exception of the interest rate. The cost of second mortgage credit when obtained from sources other than former owners seems high, although this study did not include investigation of the risks involved. The high financing cost can probably be explained by the underdevelopment of large institutions making second mortgage loans. Although two such institutions are present in the Chicago market, the majority of second mortgage business is carried on by small firms and individuals, which prevents the operation of the insurance principle through the spreading of risk. The distribution of risk is fundamental to the development of extensive money lending. The justification of high rates on the basis of loan costs was found untenable by examination of the cases because costs increased proportionately in the large loans as in the small.

[31] For a comparison, take a railway issuing 6% bonds maturing in 30 years, turning them over to an investment banker at a discount of 5%. The actual cost of the borrowing exclusive of interest, will be .05/30 or .0017%. The urban property owner pays 3% commission for a 6% mortgage maturing in five years but because of the shorter period his cost of financing will be almost four times as high or .006% per dollar. The railway paid almost twice as much for placing its securities. The above seems to be an argument for doubling the duration of first mortgages, especially in cases where they are based on conservative valuations.

The cost of second mortgage money was found to be 11.7% for the properties analyzed. The second mortgage situation is a problem in installment purchase in which the moral risk should play a larger part than in the case of the first mortgage. Sound appraisals, wide distribution of risks, and consideration of the moral risk should permit some lowering of rates, which in turn should lead to increased applications to the established companies.

Always standing in the way of decreased real estate credit costs is the local character of the real estate market, its general lack of organization, its seasonal and cyclical tendencies, and the legal impediments to transfer and hypothecation. Continued quantitative studies lending aid to the solution of these problems should contribute to cheaper costs in junior lien financing especially.

The technique developed in this study, if applied to the 1927 market, would present a significant comparison of the general changes in lending conditions that may occur in a period of two years. The readers must again be reminded that this study described the Chicago real estate finance market in the first half of 1925.

THE CHANGING CHARACTER AND EXTENT OF MUNICIPAL OWNERSHIP IN THE ELECTRIC LIGHT AND POWER INDUSTRY OF MISSOURI

By HUBERT F. HAVLIK*

THE character and extent of municipal ownership in the electric light and power industry have changed in response to innovations in the method of supplying electric service. Quantitative analysis of the life histories of individual establishments gives an accurate picture of the changes that have taken place in the municipally owned portion of this industry in Missouri. However, absolute accuracy is impaired by the necessity of going far back into the early history of the industry when adequate records are not easily available.[1]

The history of municipal ownership in the electric light and power industry in Missouri shows that between the years 1885 and 1928 at one time or another 107 different municipally owned establishments have been actively engaged in the generation or distribution of electric energy for commercial purposes.[2]

Periods of Growth and Decline of Municipal Ownership in Missouri

According to the best records available, the first municipal plant in Missouri was established in 1886 and three years elapsed before another municipal plant came into existence. From 1889 to 1900 the number of establishments increased continuously and fairly rapidly so that by 1900 32 municipal plants were operating in Missouri (Table I). From 1900 to 1910 the number of municipal establishments rose steadily. By 1910, 62 municipalities owned establishments, the number having almost doubled in the 10-year period. The next five years, 1910 to 1915, were a period of rapid increase for 21 municipal plants were added. The maximum number ever in existence at a given time was reached in this last year when the total was 83. Since the high point of 1915 the total number of municipal establishments has declined until in 1927 only 56 were in existence. During these twelve years the number of municipal plants which were sold to private owners exceeded

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* EDITORIAL NOTE. This is the third of a series of special studies of municipal ownership by states. See 3 *Journal of Land & Public Utility Economics*, 173–182 and 298–307 (May and August, 1927).

[1] In this study a number of sources were relied upon and these in a number of cases were found to be in conflict, particularly with respect to the status of municipal ownership in the early years covered by this study. For the period from 1914 to 1922 chief reliance has been placed on the reports of the Public Service Commission of Missouri and upon information furnished by the Missouri Committee on Public Utility Information. Extensive questionnaires to managers, municipal plants, city clerks, mayors and postmasters in the state have yielded much valuable information as well as afforded a method of reconciling conflicting reports. The McGraw *Central Station Directory* proved very helpful, particularly in giving leads as to plants which once existed.

[2] Establishments held by municipalities for a short period, chiefly for purposes of resale, are not included. Norborne held an electric plant during 1924. Willow Springs is reported by the McGraw *Central Station Directory* as municipal in 1904 but the village clerk states that, although the plant was municipally owned for an indefinite period between 1904 and 1906, it was not in operation much of the time. It was excluded from these calculations.

TABLE I. ANALYSIS OF EXTENT AND CHANGING CHARACTER OF MUNICIPAL OWNERSHIP OF ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN MISSOURI, BY YEARS: 1886–1927*

YEAR	TOTAL NUMBER OF MUNICIPAL ESTABLISHMENTS IN EXISTENCE IN EACH YEAR	NUMBER OF MUNICIPAL ESTABLISHMENTS ORIGINATING AS:					NUMBER OF ESTABLISHMENTS CHANGING FROM		ACTUAL NET INCREASE IN NUMBER OF MUNICIPAL ESTABLISHMENTS	NUMBER OF ESTABLISHMENTS (MUNICIPAL) CHANGING FROM		
		Private Establishments	Municipal Establishments				Private to Municipal Ownership	Municipal to Private Ownership		Generating All to Generating Part	Generating All to Generating None	Generating Part to Generating None
			Total Number	Generating All	Generating Part	Generating None						
1886	1	.....	1	1	.....	.....	.....	.....	1	.....	.....	.....
1887	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1888	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1889	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890	2	1	1	1	.....	.....	.....	.....	1	.....	.....	.....
1891	4	.....	2	2	.....	.....	.....	.....	2	.....	.....	.....
1892	9	.....	5	5	.....	.....	.....	.....	5	.....	.....	.....
1893	9	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1894	14	2	5	5	.....	.....	.....	.....	5	.....	.....	.....
1895	15	1	1	1	.....	.....	.....	.....	1	.....	.....	.....
1896	18	1	3	3	.....	.....	.....	.....	3	.....	.....	.....
1897	21	3	3	3	.....	.....	1	1	3	.....	.....	.....
1898	28	2	6	6	.....	.....	1	.....	7	.....	.....	.....
1899	29	1	1	1	.....	.....	.....	.....	1	.....	.....	.....
1900	32	1	3	3	.....	.....	.....	.....	3	.....	.....	.....
1901	34	.....	2	2	.....	.....	.....	.....	2	.....	.....	.....
1902	37	3	3	3	.....	.....	.....	.....	3	.....	.....	.....
1903	40	1	1	.....	.....	1	2	.....	3	.....	.....	.....
1904	47	.....	2	2	.....	.....	5	.....	7	.....	.....	.....
1905	49	1	2	2	.....	.....	1	1	2	.....	.....	.....
1906	49	.....	1	1	.....	.....	.....	1	.....	.....	.....	.....
1907	54	2	5	5	.....	.....	.....	.....	5	.....	.....	.....
1908	55	.....	2	2	.....	.....	1	2	1	.....	.....	.....
1909	58	.....	3	3	.....	.....	.....	.....	3	.....	.....	.....
1910	62	1	.....	.....	.....	.....	4	.....	4	.....	.....	.....
1911	64	.....	2	2	.....	.....	.....	.....	2	1	.....	.....
1912	65	.....	1	1	.....	.....	2	2	1	.....	.....	.....
1913	66	2	2	2	.....	.....	.....	1	1	.....	1	.....
1914	71	4	4	2	.....	2	2	1	5	.....	.....	.....
1915	83	1	8	5	.....	3	4	.....	12	.....	1	.....
1916	80	.....	.....	.....	.....	.....	1	4	—3	.....	1	.....
1917	80	.....	1	1	.....	.....	1	2	.....	.....	1	.....
1918	79	.....	1	1	.....	.....	.....	2	—1	1	1	.....
1919	80	.....	2	2	.....	.....	3	4	1	.....	.....	1
1920	76	.....	.....	.....	.....	.....	.....	4	—4	.....	.....	.....
1921	77	.....	1	.....	.....	1	3	3	1	1	1	.....
1922	74	.....	1	.....	.....	1	.....	4	—3	.....	1	1
1923	72	.....	1	.....	.....	1	.....	3	—2	.....	.....	.....
1924	68	.....	1	.....	.....	1	.....	5	—4	.....	1	1
1925	62	.....	.....	.....	.....	.....	.....	6	—6	1	1	.....
1926	58	.....	1	.....	.....	1	.....	5	—4	4	.....	2
1927	56	.....	.....	.....	.....	.....	.....	2	—2	.....	.....	.....

* Electric plants in the following towns were reported by the Public Service Commission of Missouri as municipal in the years parenthesized, but for reasons stated have not been included in this study: Baring (1921–1922)—the village clerk states that it was served from Edina in those years; Boonville (1915)—the company now serving the town states that the plant was always privately owned; Eminence (1914)—according to the *McGraw Central Station Directory* it was municipal from 1918 to 1921, but according to an official of the company now serving Eminence, the plant was never municipally owned although the "departments at Washington" continue to regard it as municipally owned; Windsor (1921–1922)—the private company now serving states that the plant has always been privately owned; Worth (1921–1922)—according to the private company serving at the present time the plant was built by a private company and has always been privately operated.

The *McGraw Central Station Directory* reports King City as municipal in 1911, but statements of the local postmaster and a bank official agree that the plant always has been privately owned.

the number established during the period (Table I).[3]

Plants Which Originated as Municipal Undertakings

In analyzing these trends, it is interesting to note whether the municipal establishments were purchased from private owners or constructed by the municipality and to discover in each case whether the plants began operations by generating all, generating part or purchasing all their output. Of 107 instances of municipal ownership, 78 originated as municipal undertakings, while only 29 were initiated as private enterprises (Table II). Of the former group 67 began as self-sufficient plants generating their entire output. The other 11 which originated under municipal ownership began operations as plants purchasing all their output from other plants. These latter are almost all of recent origin; only one such instance is recorded before 1914 (Table I). Of 21 establishments originating since 1913 as municipal undertakings, 10 purchased all their output since their inception. It is likewise to be noted that of these same 21 establishments, 10 have been transferred to private ownership. The foregoing facts indicate among other things that in Missouri, as in Wisconsin and Massachusetts, the majority of municipally owned establishments originated as public enterprises. This lends support to the proposition that electric service often began under municipal supervision because private agencies were unwilling to provide such service.

Municipal Plants Which Began as Private Establishments

Similar analysis can be made of the group of 29 municipal establishments beginning operations as private stations (Table II). In 25 of these 29 communities, which turned from private to public ownership, the municipal successor of the private company generated its entire output. One of the 29 changed from private to a municipal establishment generating part of its output, while 3 became municipal establishments purchasing their entire supply. Ten of the 25 plants generating all their output continued to do so, while 1 later purchased part of its output, 4 their entire output, and 10 have reverted to private ownership.

Movement Toward Dependence on Purchased Current

Transferring attention again to the 78 plants which began under municipal auspices, the shifts from self-sufficiency to partial or complete dependence on purchased energy are interesting. Sixty-seven generated all their output when first inaugurated but only 23 of them continued to be self-sufficient generating plants. Of the 44 which did not remain totally independent, 33 were sold to private owners (1 later reverted to public ownership), 5 shifted to generating none of their output, and 6 to generating

[3] Data from the census reports for 1902, 1907, 1912, 1917 and 1922 correspond closely to the data used in this study, when corrections are made for the following which are included in the census enumeration but not in this study: (a) Plants leased to a private operator; (b) Municipal plants whose total output is used for public purposes only, such as street lighting; (c) Municipal plants which operated for only part of a calendar year before selling out to a private operator; (d) The plant at Eminence which was wrongly reported as municipally owned. With these corrections the chief differences are as follows: The census figures exceed those in Table I by 3 to 5 establishments in the period from 1889 to 1896, by 3 plants in 1901, and 5 in 1902. The figures in Table I exceed census data by 4 plants in 1912 and 7 in 1922. In other years, the difference ranges from 0 to 2. It appears that the census data are more complete than those used in this study in the earlier half of the period covered, and that the reverse is true for the latter half.

part of their output. Four of the 5 plants which changed to generating none of their output continued as distributing establishments only, while 1 was transferred to private ownership. The number of those plants which turned from generating all to generating part of their output, decreased from 6 to 2 because 3 plants ceased to generate any current whatsoever, and 1 plant changed to private ownership.

The movement toward total dependence upon purchased current is further borne out by reference to Table II. In 11 instances establishments originated by municipalities began solely as dis-

TABLE II. ANALYSIS OF CHANGING CHARACTER OF MUNICIPAL OWNERSHIP OF ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN MISSOURI: 1886–1927

Total Number of Municipal Establishments in Missouri, 1886–1927	107						
I. Number Originating as Private Establishments		29					
A. Number Changing from Private to Municipal Establishments Generating All of Output			25				
1. Number continuing to generate all of output				10			
2. Number changing from generating all of output				15			
a. to generating none of output					4		
(1) Number continuing to generate none of output						3	
(2) Number changing to private establishments						1	
b. to generating part of output					1		
c. to private establishments					10		
(1) Number continuing as private establishments						9	
(2) Number changing from private to municipal establishments generating all of output						1	
B. Number Changing from Private to Municipal Establishments Generating None of Output			3				
1. Number continuing to generate none of output				1			
2. Number changing to private establishments				2			
C. Number Changing from Private to Municipal Establishments Generating Part of Output			1				
1. Number changing from generating part of output to generating none				1			
II. Number Originating as Municipal Establishments		78					
A. Number Originating as Municipal Establishments Generating All of Output			67				
1. Number continuing to generate all of output				23			
2. Number changing from generating all of output				44			
a. to private establishments					33		
(1) Number continuing as private establishments						32	
(2) Number changing from private to municipal generating all to generating part						1	
b. to generating none of output					5		
(1) Number continuing to generate none of output						4	
(2) Number changing from generating none of output to private establishments						1	
c. to generating part of output					6		
(1) Number continuing to generate part of output						2	
(2) Number changing from generating part of output						4	
(*a*) to generating none of output							3
(*b*) to generating none to private establishments							1
B. Number Originating as Municipal Establishments Generating None of Output			11				
1. Number continuing to generate none of output				6			
2. Number changing from generating none of output to private establishments				5			

tribution systems (10 since 1913). However, only 6 remained so, for 5 were transferred from municipal to private ownership.

These movements are more clearly portrayed in the last three columns of Table I, which show an historical distribution of changes in the character of electric service rendered by municipally owned plants. The net result of this development is summarized in Table III which gives the year-by-year changes in the number of municipal establishments generating all, generating part and purchasing all their output. A graphic portrayal of Table III appears in Chart I. All municipal establishments operating between 1885 and 1903 were entirely self-sufficient. The number of plants generating their entire output reached a peak in 1915, declined slowly until 1920, and since then has decreased rapidly until at the present time only 34 self-sufficient plants are in existence.

TABLE III. NUMBER OF MUNICIPAL ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN MISSOURI GENERATING ALL, PART OR NONE OF CURRENT DISTRIBUTED, BY YEARS: 1886–1927

Year	Total Number of Establishments	Number Generating All	Number Generating Part	Number Generating None
1886	1	1	.....	.....
1887	1	1	.....	.....
1888	1	1	.....	.....
1889	1	1	.....	.....
1890	2	2	.....	.....
1891	4	4	.....	.....
1892	9	9	.....	.....
1893	9	9	.....	.....
1894	14	14	.....	.....
1895	15	15	.....	.....
1896	18	18	.....	.....
1897	21	21	.....	.....
1898	28	28	.....	.....
1899	29	29	.....	.....
1900	32	32	.....	.....
1901	34	34	.....	.....
1902	37	37	.....	.....
1903	40	39	.....	1
1904	47	46	.....	1
1905	49	48	.....	1
1906	49	48	.....	1
1907	54	53	.....	1
1908	55	54	.....	1
1909	58	57	.....	1
1910	62	61	.....	1
1911	64	62	1	1
1912	65	63	1	1
1913	66	63	1	2
1914	71	66	1	4
1915	83	73	1	9
1916	80	68	2	10
1917	80	68	2	10
1918	79	65	3	11
1919	80	65	2	13
1920	76	61	2	13
1921	77	58	3	16
1922	74	54	2	18
1923	72	52	2	18
1924	68	47	1	20
1925	62	41	2	19
1926	58	35	4	19
1927	56	34	4	18

The tendency of municipal establishments to purchase part of their output began to show itself in Missouri in 1911. Since then the number in this class has increased only slightly (Table III). Further reference to Table II reveals that at one time or another only 9 of the 107 municipal establishments which existed in the period from 1886 to 1927 went through this stage. The number of instances of municipal establishments which merely retail electricity was in contrast much larger, 27 of the 107 cases of record during the entire period.

The movement toward complete dependence on purchased current began in 1903 but did not assume any importance until 1915. Between 1915 and 1925 the number of these establishments purchasing their entire output increased rapidly until it reached 20. Since then it has declined slightly. Of the 56 municipal establishments in existence in 1927, 18 purchased their entire output. In this group, 7 as municipal plants always had purchased all their output; 7 had previously generated all; 1 had once generated part, and 3 had once generated all but later only part of their output. In no instance did a municipal plant which purchased part of its current become a totally self-sufficient plant.

Recession of Municipal Ownership in Missouri

Chart I also pictures the decline in the number of municipally owned establishments which began in 1916. Previous to 1915, 9 plants were transferred from municipal to private ownership. Since then 44 such changes have taken place with the largest number in 1924, 1925 and 1926, when 5, 6, and 5 plants respectively changed classification. Of the 53 plants bought by private companies, 33 changed abruptly from municipal plants generating all their output to private ownership (one later was re-transferred to the municipality); 1 shifted from generating all to purchasing all before it ceased to be municipal; 5 changed from a status of purchasing all current to private ownership; 1 changed from generating all to generating part, and then to purchasing all before it was sold to a private company. The remaining 13, originated as privately owned establishments, were sold to municipalities and then reverted to private ownership. Of these 13 formerly private establishments, 10 changed directly from generating all to private ownership (1 of these 10 transferred for a second time to municipal ownership), 2 changed from purchasing all to private ownership, 1 from generating all its output to purchasing all and then to private ownership.

The number of accretions to the ranks of municipally owned establishments either by purchase from a private company or by construction of new plants has not materially offset this movement toward private ownership. Since 1915, 9 municipalities have constructed plants while 8 have purchased plants from private owners. This gross increase of 17 in the number of municipal establishments is offset by a gross decrease of 44,

CHART I

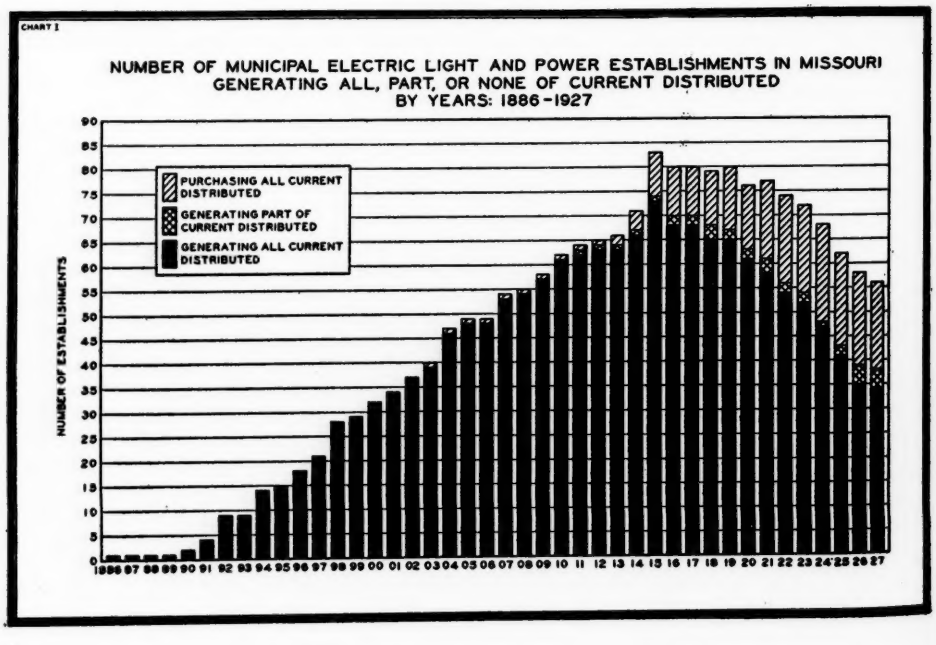
CHART I
NUMBER OF MUNICIPAL ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN MISSOURI GENERATING ALL, PART, OR NONE OF CURRENT DISTRIBUTED BY YEARS: 1886-1927
PURCHASING ALL CURRENT DISTRIBUTED
GENERATING PART OF CURRENT DISTRIBUTED
GENERATING ALL CURRENT DISTRIBUTED
NUMBER OF ESTABLISHMENTS
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
1886 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

leaving a net decrease since 1915 of 27 establishments.

Comparative Trends of Municipal Ownership in Missouri, Wisconsin, and Massachusetts

This brief summary of the outstanding changes in municipal ownership in the electric light and power industry in Missouri affords opportunity for comparison with similar analyses made for the states of Wisconsin and Massachusetts.[4] The total number of instances studied in Missouri from 1886 to 1927 was 107; in Massachusetts (1882–1926) 45, and Wisconsin (1885–1926), 116. The movement in Missouri and Massachusetts began at a faster tempo than in Wisconsin. Thirty-two of Missouri's 107 instances of municipal ownership had already appeared in 1900. In the same year Massachusetts had developed only 18 of its total of 45 and Wisconsin but 15 of the 116 instances found there. In Missouri and Wisconsin the number of plants declined after the peaks reached in 1915 (83 plants) and 1919 (105 plants) respectively. In Massachusetts the number of municipal establishments increased steadily until, in 1926, 42 municipal establishments were in existence; whereas in Missouri the number dropped from 83 in 1915 to 56 in 1927, and in Wisconsin the number decreased from 105 in 1919 to 90 in 1926.

The changes in the character of municipally owned establishments have not been so great in Missouri as they have been in Wisconsin and Massachusetts. Comparison of the lists of municipally owned plants in the three states shows marked differences. In 1927, 34 municipal plants in Missouri were self-sufficing; 4 generated part and purchased part, and 18 purchased their entire output. This is in distinct contrast with Wisconsin, where in 1926 only 16 of 90 municipal plants generated all their supply, and 65 purchased their total output. The contrast with Massachusetts is even greater. In this state none of the 42 municipal plants existing in 1926 generated all their output, and 31 of these were totally dependent upon purchased current. Thus the municipal establishment which generated all its output has always been more important in Missouri than in Wisconsin or Massachusetts.

Further differences among Missouri, Wisconsin, and Massachusetts appear in transfers of central stations between private and public owners. The situation with respect to changes from public to private ownership contrasts significantly with changes in the opposite direction. In Massachusetts, accretions to the total number of municipally owned establishments by purchase of private plants entirely overshadowed losses by sales to private companies. Of the recorded 45 municipal establishments in that state, 15 were purchased from private companies, whereas only 3 were sold to private owners. Similar comparison in Wisconsin discloses a different phenomenon. In this state 23 municipalities acquired privately owned plants, whereas 29 other municipalities sold their electric properties to private owners.

This flow of plants from one class of ownership to another has been more active in Missouri than in either of the other two states analyzed. Almost twice as many electric establishments were sold by municipalities to private companies, as were purchased by municipalities from private owners. Transfers from public to private ownership occurred 53 times (2 of the plants so

[4] See *supra*, Editorial Note.

transferred later returned to municipal ownership) and 31 sales of private establishments to municipalities took place. Two of these 31 private plants had previously been municipally owned.

Changes of this character, where an establishment has been operated under municipal ownership at two different periods, with a period of private ownership intervening, indicate a quicker tempo of municipal ownership in Missouri than in Wisconsin and Massachusetts. In one of the instances recorded in Missouri, an electric light and power establishment, which was inaugurated under private auspices transferred to municipal ownership, reverted to private ownership and then was a second time purchased by the municipality. In the other instance of record, the electric plant was established under municipal auspices, then sold to a private company which later resold the establishment to the municipality. No similar instances have been found in Wisconsin or Massachusetts.

In summary, these contrasts of the trends of municipal ownership in the electric light and power industries in the three states studied indicate certain common tendencies as well as material differences.

Massachusetts exhibits a strong tendency away from generating self-sufficiency toward a status where the major portion of all current distributed is purchased. Since 1922 all municipal establishments in this state have purchased all or part of their output. This disappearance of the self-sufficient municipal establishment has been accompanied by a very small number of transfers from public to private ownership.

Wisconsin likewise displays a decided trend toward dependence upon purchased current. However, the self-sufficient municipal plants which generate all their output continue to be important there, although they are in the minority when compared with those which purchase all or part of their output. It is also a matter of some consequence to note that the average size of the community having a municipally owned plant in Massachusetts is far larger than similar communities in Wisconsin. Furthermore, in Massachusetts it appears to be true that the inertia with respect to change from public to private ownership is apparently greater in larger communities than in communities the size of those which predominate in Wisconsin.

With reference to the changing character and extent of municipal ownership, Missouri resembles Wisconsin more closely than Massachusetts. In Missouri, electric light and power establishments generating their entire output have always been the chief source of current distributed by public agencies. Also the number of sales of publicly owned establishments to private companies has been absolutely and relatively larger. However, the tendency of the movement in recent years is of most importance in forecasting the future. While the number of municipal non-generating establishments has almost doubled in the last decade, the number of self-sufficient generating plants has been halved, and since 1915 the number of municipally owned plants has sharply decreased.

TECHNOLOGY AND THE WIDENING MARKET FOR ELECTRIC SERVICE

By E. O. MALOTT

A MAJOR problem of industry in general has been the development of the market both intensively and extensively. In the electric light and power industry the solution of this problem is closely associated with the utilization of efficient large-capacity generators and the consequent reduction of unit overhead costs and unit operating costs. Electric utility economics had not been differentiated from general economic principles and the pioneering utility executives were left to find a way out of their difficulties by the method of trial and error. With the heavy investment involved, this procedure required a great deal of courage. A quotation from a utility leader who has followed the industry from its inception is to the point:

"It was not until about 1892 and 1893 that we began to wholesale electric energy. I do not know what others who were in the business then may say, but I confess that I knew nothing at that time about the economics controlling the business. When the General Electric Company was formed, I transferred from the manufacturing to the central station side of the business and took the presidency of the old Chicago Edison Company in 1892. But I knew absolutely nothing about the economics governing the business, and I do not believe anybody else in the country knew anything about it, because every step that any of us took in the direction of wholesaling energy—and there were only a few who did it—drew severe criticism from everybody else in the business and we were told that we were headed for disaster and receiverships." [1]

This bold move toward a wider market was successful and with elaborations is the foundation for the huge output of today.

Major Problem has been Market Development

The development of the utility market involves the principle of economic monopoly discrimination which is the principle implied in the quotation from Mr. Insull. Each class of customers is charged as nearly according to ability to pay as practicable. The lower limit to the charge is the direct operating cost incurred in supplying the additional load, although of course an effort is made to recover as much of overhead costs as possible. Under this principle is secured the widest possible exploitation of the market. While application of the principle is theoretically easy by "higgling" with each customer until his ability to pay is found, this method is confined for the most part to small-scale production.[2] A utility might take the time to negotiate an individual contract with each customer, but how may an electric utility confine a customer to the terms of the bargain when control of the time, amount and maximum demand for the service rests with the customer?

[1] Samuel Insull, "Forty-Five Years in the Electric Light and Power Business," an address to the Baltimore Bond Club, 1926.

[2] In oriental and some European countries, the individual bargaining method is used. Considerable skill in the "art" is exhibited by practitioners but the turnover of goods is necessarily slow. Alexander T. Stewart is said to have started in 1825 the first "one-price" store in the United States. The "one-price" policy saves the time of clerks and the cost of clerks, as less skilled help may be profitably used with the result that more goods are disposed of at lower average expense than under the "higgling" method. Even with competition, identical goods may sell at a higher price at an exclusive store catering to a high class trade than at another store attracting a lower class trade. Or the same store may accomplish the result through "bargain basements." In these cases, differentiation of customers is possible on a large scale. Professional men, such as lawyers, doctors, and consulting engineers, differentiate clients according to ability to pay in rather careful fashion.

Moreover, public policy is against *unfair* discrimination. Scientific differentiation of customers was made possible for the utility after the development of meters such as those for measuring energy consumption, power demand, and power factor. The market requirements of individual electric customers are thus brought under better control by the utility.

Electric utilities have a large fixed investment with slow turnover so that the withdrawal of capital is retarded. Thus technological improvement is forced in order to increase efficient utilization of investment. For example, physical integration was undertaken to secure the advantage of high efficiency generation and improved load factor with the resulting lower investment per station capacity and lower production cost per unit of output. Under these conditions the market for electric service is widened and better control of the market in general is secured.

In order to trace the technical advances in the electric utility field which either necessitated or accompanied a widening market, three periods have been roughly marked out from the inception of the central station to the present: (1) establishing a market; (2) developing the market, extensively and intensively; and (3) concentrating the control over the market. These stages (in the evolution of the market for electricity) are partly successive and partly concurrent and a cross-section of the electric light and power market today would reveal the several stages in various portions of the market. For example, farm electrification represents an endeavor to establish a new market.

In each period improvements in equipment and method seem clearly to have resulted in business policies which later are incorporated in the economics of public service industries, although in some instances business policies have called forth changes in technology. In the history of the electric industry we do not find a single chain of cause and effect from technological advances to changes in business policies. In fact, business practices and technical changes are closely interrelated; sometimes one factor is the cause and sometimes the other. For example, at one stage in the industry's development, technical improvements created unused capacity which directed attention to the problem of developing a market for this unused capacity. The development of this market in turn necessitated new technical improvements which would efficiently increase station capacity. This reciprocal relation between technology and marketing practices will be illustrated in the following analysis. While many important inventions were made during the life of the industry, only a few will be noted to show their effect upon electric utility economics.

Establishing a Market

Two things are essential to a market—a reliable supply coupled with a reliable demand. When Goebel exhibited his incandescent lamp near the middle of the nineteenth century, it was viewed as a curiosity and nothing happened. Over a quarter of a century later, Edison introduced his now-famous incandescent lamp and violent financial flurries took place. From the time of Goebel to that of Edison, an inexpensive, dependable source of electricity had been made available in the Gramme ring generator. Of course, the Brush arc had been developed a few years previously but the arc lamp was limited to the narrow market of street lighting. Edison's lamp "sub-divided" the brilliant high

candle power of the arc into smaller, low candle power lamps suitable for the wider market of commercial lighting. A central station then became economically feasible and three years later the first station to maintain continuous operation was placed in service.

Two kinds of markets may be distinguished: One for lighting, the other for power. The lighting market, except in large cities, is practically a night load, while the power market is substantially a day load. A combination of the two markets is essential to the efficient utilization of the capital invested in the central station. The lighting market was entered by means of Edison's incandescent lamp. Similarly in this early period of establishing a market should be placed, without regard to date of invention, the Gramme direct current motor, the Thomson electric welder, and the successful electric railway[3] developed by Sprague and a host of others, since these applications of electricity opened up the market for power.

Developing the Market

Manufacturers frequently find themselves unable to take advantage of a potential market, because freight rates and other distribution expenses raise the cost of the product above the marginal value to the prospective customer. A solution may be found which allows the producer to take advantage first of a narrow portion of the possible market which he may later widen with profit to himself, whenever productive capacity is not otherwise fully utilized and competitive conditions are not adverse. If it were found possible to enter a potential market so advantageously as to exploit it fully, the manufacturer need fear no competition for he may then control his market. This latter condition is discussed under the third period and the former situation is covered in the second period during which the market for electricity was developed first extensively and later intensively.

Markets may be reached by the reduction of distribution cost, by reduction in cost of production, and by reduction in utilization cost to the customer per unit of product. To reach the restricted market area of the first period, the necessity of reducing distribution costs was apparent. The three-wire distribution system independently invented by Edison, Hopkinson and Von Siemens saved two-thirds of the copper required to carry the current with reasonable loss and thus cut down investment cost. Even then the market area was seldom over one square mile and the average capacity of generators was 200 to 300 kilowatts with a maximum not exceeding between 500 to 600 kilowatts. Under such conditions an economist viewing the field might truthfully have said that the electric service industry was a restricted market industry of local character much as he refers today to the brick-making industry although the latter industry has comparatively a very much wider market area. Of course, several generating stations could be and often were owned by the same people as are brick plants today but central stations at that time were essentially "local utilities."

Physical Extension of Market

Kilowatt-hours are not bricks and inventors soon found a way around the transportation difficulty. Stanley's transformer made possible the economical

[3] Electric railways started with private generating plants but nearly two decades afterwards began to purchase power from central stations. They are included at this point because of later market significance.

transmission of electricity from producer to consumer and thus pushed back the extensive market frontier, as well as accelerated intensive market development. In the transmission of electricity, the large item of loss is that caused by the resistance of the wire to the current. Since resistance is substantially constant, loss may be controlled better by controlling current. But the power which the customer wants is the product of the voltage and the current. A reduction of current at the same voltage in order to reduce transmission loss would correspondingly and arbitrarily establish market limitations. On the other hand, if voltage is increased, the current required for the same power demand by the customer will be less, transmission loss will be cut down and the market can therefore be widened for a given distribution cost. Objection is immediately made that the product is not in the form desired by the customer. High voltage is dangerous to handle and equipment to utilize it is expensive for the customer. Stanley's solution of this marketing problem—the transformer—was to change the electricity to a high voltage and low current for economical transmission to the customer and then to change the electricity to low voltage and high current for the customer's convenience. Looking backwards, the solution was logical from the standpoint of marketing economics and the economist may point to a somewhat similar solution in the compression of cotton for transmission to market or to Ford's method of shipping automobile parts to centrally located assembling plants. But at that time several leaders in the utility business so opposed the use of high voltage (they called it the "baby-killer") that they are said to have secured the introduction of the electric chair in New York for the "electrocution" of criminals in order to point out its dangerous character.

At first a transformer was placed on the premises of each customer but operating experience soon proved that a "block" transformer serving a group of customers was cheaper, because it incurred less distribution loss in itself and because the investment cost was much less per unit of capacity rating. Moreover, investment cost was further reduced by the use of a transformer of smaller rating than the sum of the ratings of the individual customers served because of diversity of use by customers. The concept of diversity is very important in minimizing overhead cost per unit of service but it was not fully appreciated until technical progress again brought it to the front in the third period.

Reductions in cost of production and in utilization cost to the customer per unit of product were made possible by Tesla's polyphase inventions. Through the use of his inventions economical alternating-current polyphase generators were made and installed with resulting lower cost of producing electricity and the economical alternating-current induction motor was made available for the power requirements of customers. As the area of the market widened with the advance of science, some generating stations became substations, or distributing centers, for the adjacent central station which was equipped for more economical generation, just as in other industries today small factories are often bought by larger, lower-cost producers and used for warehouses from which the local trade may be supplied.

The first substantial lowering in the cost of production came with the introduction of the triple expansion marine engine which was directly connected to the generator. This innovation also

lowered the investment cost per station capacity. A margin was made available which could be used to absorb the distribution costs to the market or to lower the price; either would enable an expansion of the market.

Recently an automobile manufacturer offered to replace the cylinder head of earlier models so that old customers might take advantage of the new high compression gasoline. He did this in order to preserve the good-will of customers and to maintain the market for his automobile. Often manufacturers have likewise continued to make parts for discontinued lines or models merely as a market service. Electric utilities were confronted by this problem when cheaper alternating-current generation and transmission systems were adopted. Many customers had direct-current apparatus and, to permit continued utilization of these appliances, the central stations made use of such equipment as motor-generator sets and rotary converters which changed the alternating current to the direct current desired by customers. A market was retained and confidence in the possibility of salvaging obsolescent appliances in the transition gained the good-will of users.

Economic Expansion of the Market

In industrial marketing practice a customer who occasionally gives a large order with few or no orders for considerable intervals of time is usually subordinated to the regular customer who sends in frequent orders, unless the manufacturer's stock of goods is large. The intermittent customer is considered more expensive than the regular customer. To meet this irregular demand business practices have been developed which differentiate in favor of the regular customer. An electric utility has the same kinds of customers but it lacks the advantages of other manufacturing industries in that a customer fills his own order whenever and for whatever amount he pleases. He is on the same lines as other customers and whether regular or irregular he can not be differentiated arbitrarily. The irregular customer is a more serious problem in the electric service industry because his order must be manufactured the instant he places it. A large investment in generating equipment is required for this customer and (neglecting diversity) the investment is not utilized for a large part of the time. But until the irregular customer can be singled out, he cannot be made to pay his cost. Consequently, the cost of the irregular customer is distributed over all customers and the resulting higher cost of service restricts the market.

A solution of this problem appeared in the Wright demand meter which registered the high demand of the irregular customer. At about the same time, both Wright and Hopkinson worked out schedules of demand-rates which made the irregular customer pay his way. Through demand meters and schedules of demand-rates customers are scientifically differentiated and fair discrimination is possible. Under these conditions the market was considerably broadened and the experience thus gained led to the elaboration of the principle in the next period.

Concentrating the Control over the Market

Economies of large-scale production are well known and need not be discussed. A manufacturer who achieves economical large-scale production may have an advantage over smaller competitors even though they may be situated in the center of a local market.

Although the triple expansion marine engine gave comparatively large-scale production for its time, the limit of a reciprocating engine was felt to have been reached at about 5,000 or 6,000 horsepower. Additional units of maximum rating were installed when further expansion was thought desirable. Under these conditions a limitation was placed upon the economy of large-scale production and the market which could be economically reached.

Then came the turbo-generator and in its wake has followed an ever widening market with the assimilation of distant markets previously dominated by local generating stations. Physical integration was accompanied by financial integration aided by the popular holding company.

The first turbo-generator to be used in this country was rated at 5,000 kilowatts[4] and subsequent progress has resulted in very much larger units today. In fact, a recent advertisement of a large electrical equipment manufacturer announced that a unit of 208,000 kilowatts was under construction. Each increase in size has resulted in appreciable saving in production cost, in investment cost per unit of generator capacity, and in investment cost per unit of station capacity. Efficiency of production is so great that the added cost of transmission to more distant markets may be counterbalanced and a kilowatt-hour sold profitably by the distant station at a price below the cost of the small local station. Transmission cost has also fallen with the improvements in equipment and the use of higher voltages. Automatic substations, which have contributed their share toward making possible the extension of the physical area of the electric market, have nevertheless been very important in facilitating the concentration of control over the market.

Inventions such as the tungsten filament lamp, the gas-filled lamp, and a vast amount of electrically operated machinery have increased the efficiency of utilization of the service and correspondingly both widened the market and enabled greater control. To secure the same result with the improved appliances as with the old, the customer does not use as much power and the cost to him is therefore less. If the central station left the market in that condition, the contraction would eventually have an adverse effect upon load. In such circumstances the central station endeavors to extend the service to prospective customers who have previously viewed it as a too expensive luxury, and to maintain or even increase the use of the service by old patrons who have become accustomed to a certain level of service cost. Old customers were encouraged, for example, to adopt a higher standard of lighting for the same cost as that of the old carbon lamp. Better lighting fixtures had to be developed to make the higher standard seem more desirable. Then too, additional uses for power were found in vacuum cleaners, toasters, grills, and even electric ranges and domestic refrigeration plants. New customers were secured partly on the basis of cost lower than that of competitive illuminants and partly on the basis of better illumination which became a reality after the ductile tungsten filament was produced. Undoubtedly, by this time, the attitude of the public had changed from regarding electric lighting as a luxury to considering it as a necessity. How effective this changed attitude was in extending the market is uncertain, but it unquestionably was a factor of some weight.

[4] The unit developed about 7,500 kilowatts in operation. The difference may be attributed to inexperience and conservatism in rating the new kinds of equipment.

With large generating stations, idle equipment is very expensive and every effort is made to increase the "load factor" which is the ratio of the average load carried to the "peak" or maximum load thrown on the station. To do this, advantage is taken of diversity of use by different classes of customers and rate schedules are prepared so as to build up load at times when otherwise the generators would be only partially utilized. Differentiation is made between such unrestricted users as residence owners whose demands are fairly definite or too small to warrant the cost of measuring; manufacturers, whose demands are inexpensively measurable and whose payments include definite demand charges; restricted users, who are limited to off-peak service, or who furnish a substantially constant 24-hour load; and a variety of other classes of patrons. In this way the most intensive development of an existing market area is possible. The economy of the larger sizes of turbo-generators forcibly brought customer and rate differentiation to the attention of utility executives over 15 years ago. After the value of differential rate schedules was recognized the electric service industry made rapid progress. Lighting loads of neighboring communities helped to fill in at night on capacity used during the day for the industrial power load of the city. Such practices of taking advantage of diversity of use explain why the combined load factor of one system is nearly 50%, although estimates of utility operators indicate that over two-thirds of the energy that could be sold would have a load factor of only 10% to 35%. Physical integration is partly an endeavor to obtain diversification with the efficiency of large-scale production. Financial integration through holding companies is an effort to secure an improved load factor for an expensive managerial organization.

Increased output of a wider market has led to greater economy of production and a still wider market which in turn leads to a still greater output and so on. What is the limit of the electric service market? Apparently the limit of the market will depend upon the limit to the economy of massed electrical production. Eventually the law of diminishing returns will operate to limit the economic increase in the size of generating units. But where will this point be? Nearly 12 years ago, one progressive utility operator said:

"Probably there is no better time than this to sound a note of warning to those who are carrying the development of prime movers to very large sizes. . . . At the present time (1916) about 35,000 to 40,000 kilowatts is the largest size that can be obtained. I have heard of some orders being given for 50,000 kilowatt machines. I am rather sorry to hear it because I think the buyers will regret it. Before we need the larger size we will need higher boiler pressure, which will require expensive experiments in boiler construction, and we will need a great many changes in the details of apparatus used in connection with large turbine units; and I think that the progress of the next few years will be the better made if it is the slower made."

Ten years later the same operator stated:

". . . We ordered . . . a few days ago (1926) a turbo-generator—that is an electric generator run by a steam turbine—of about 120,000 horsepower, and in the next few months we shall probably order one that will run up to about 150,000 horsepower."

And this same executive now has under construction a unit of 280,000 horsepower!

On the other hand, the Committee on Power Generation of the American Institute of Electrical Engineers in its 1925 report sounded a warning:

"While there has been a drop from approximately 18,000 B.t.u. per kilowatt-hour to 14,000 B.t.u. per kilowatt-hour in the last 18 months, a further reduction from 14,000 to 10,000 B.t.u. per kilowatt-hour cannot be looked for unless use is made of the mercury vapor-steam cycle, with comparatively high pressure used in connection with the mercury vapor boiler and the most efficient possible layout in connection with the steam end of the station. As far as further reduction in the fuel cost in connection with large steam stations goes, work is being done under the law of diminishing returns. A point has already been reached where further gains are going to be very difficult of attainment."

The quotations are given to emphasize the question: Where will the point of diminishing returns be reached in the size of electrical generating equipment? For a given state of the art, an answer to the question probably would be forthcoming shortly *but the state of the art is constantly changing.* It would be rash to venture a definite guess at this time. However, the optimism of "superpower"[5] enthusiasts who anticipate the transmission of large blocks of power for great distances is not justified even by a considerable imaginative stretch of the present state of the art. Diminishing returns in transmission are apparent and act as a limitation upon the geographical market area of a single generating plant.

Superpower—less magically named interconnection—is desirable and advantageous in that reserve capacity for overload and breakdown service may be made available by and to adjacent central stations. It is not economically feasible, because of the transmission losses for the most remote station at one end of the network, to transmit power directly to the other end of the network if the distance is very great. Certainly a permanent market for surplus electric power could not be established in the area of the last station nor is the plan contemplated by utility operators.

For emergency purposes when cost must be subordinated to service, transmission of power through the network is justified. The remote station would then deliver its surplus power to the interconnecting line. Part of the power delivered to the line would be received by the second station which would add its surplus power and send the total through the next link of the network. At the end of the line, that is at the last station where the emergency is assumed to exist, some amount of power would be switched into the distribution system for the use of customers. The amount of the power received would be less than the total of the amounts delivered by each station because of loss in transmission.

The problem is somewhat like that of collecting gasoline by motor truck from a number of scattered towns to be delivered to a more or less distant market. A large investment would be required in transportation equipment and highways. In addition the motor truck uses part of the gasoline received as it goes from town to town on its way to the market. When the truck gets to the last town, the delivered load of gasoline will be less than the received load by the amount used in hauling the gasoline. The comparison is not exactly in accord with practice but will help to make clear why the distant market cannot be supported by continued transfer of interconnected power.[6]

[5] Super-power means interconnection of adjacent electric generating companies for the transfer of power from one station to another primarily in emergency, although sometimes disposing of a limited amount of surplus power when no emergency exists.

[6] An interconnection from Chicago to Boston was made during the fall of 1926 merely as a test of ability to synchronize generating stations and not to transmit power. The eastern New England end of the test system alone required at Boston from 10,000 to 12,000 kilovolt-amperes for charging current.

Giant power is applied to the production of large amounts of electricity in a strategically located generating station. In the case of steam plants, condensing water requirements are paramount and a location must have an ample water supply. Two other essentials are nearness to the power market and the availability of relatively cheap fuel. While a balance may be struck among the three factors, condensing water and market are controlling because the transportation of coal is less expensive than that of water or of power. There are mine-mouth generating stations on large streams of water, but, at least in one coal field, the coal mines find it more convenient to ship the coal to the utility and to have electric power shipped back than to generate electricity for their own requirements. In the case of hydro-electric plants the principal limitations are market distance, construction cost, and uniformity of water flow.

A prominent utility executive, in an informal address before a recent power conference in the middle west, took the position that the concentration of generating capacity in a few large units is not always desirable and in many cases is decidedly unsound from the point of view of economical continuous service. In his opinion this was especially true when the units have reached a capacity of approximately 50,000 kilowatts each. In other words, when the station has a large power output, several units of equal rating give better control of operation than a single unit having the same total generating capacity. While the economy of operation and investment may be lessened by this practice, as a partial offset a saving is made in as much as fewer spare parts are required because they may be made standard and interchangeable. Investment in reserve equipment would also be less for the multiple-unit station, because an accident or repair to one unit does not necessitate throwing a heavy load upon other stations.

Interconnection has made reserves of electrical energy available to the utilities. As a result the concentration of power generation has tended to increase and the pooled reserves are depended upon in case of breakdown or for excess peak-load service. As far as the customer of the utility is concerned, these reserves prevent a stoppage of electric service. If the customer is responsible for a portion of the excess peak-load, the distributing utility may recover its cost in the demand charge. This cost would include the expense of transmitting the required amount of power from the generating stations of the interconnected network. When the utility fails to supply its customers because of breakdown of generating equipment, reliance is again placed upon the interconnected power pool, if the policy has been to concentrate generating capacity in a single large unit. The customers are served as before but the utility may not recover from them the entire cost of the power brought in over the transmission lines. Thus to a utility the use of interconnected reserves for breakdown service is more expensive than for peak-load service. The loss of power in transmission lines represents a larger percentage of the total power sold by the distributing utility when breakdown occurs than when an excess peak is met. This loss is an economic loss even though the utility may recover the out-of-pocket expense in its rates to customers.

Hence, if the generating station of the distributing utility has only a few very large units, the risk of breakdown involves a higher cost of purchased power. On the other hand, a generating station with a number of moderate-sized units

does not face so great a risk. If any one unit breaks down, it will represent a smaller portion of total station capacity than would be represented in a station with only large units.

Consequently, the facts give some support to the theory advanced by the executive just mentioned. He has applied his theory in the utility power houses of one of the largest cities in the country. This utility has had reasonable rates and also has been progressive. The contrast of the station having standardized multiple-units to permit flexible operation with the station having several large generating units indicates that single, large units are not entirely displacing the smaller, though probably somewhat less economical, equipment.

In general, to have an economic development of large-capacity power plants at any great distance from the power market either the cost of power production must be relatively low or the market demand for power must be relatively high or both low cost and high demand must be apparent. Under such conditions the transmission cost between source of supply and market will be covered. But the vast water-power resources of the Rocky Mountains are too far from the industrial middle west to be of much aid in the present state of the art.[7]

Technical progress of the electric service utility has been the foundation for the development of the economics of the electric service industry. With a heavy fixed investment the central station has been forced to secure an increase of utilization by widening the market, while the increase of capacity of equipment has brought an economy which allowed a wider market to be reached. The industry has been changed from a few hours' heavy load daily to a heavy load throughout most of the day. Valleys still exist in the load curve but the spur of a perishable production has developed a bold merchandising policy which gradually is smoothing the curve upon a higher level.

[7] See article by Walter H. Voskuil, "Water-Power Situation in the United States," 1 *Journal of Land and Public Utility Economics*, 89 (January 1925).

AGRICULTURAL RENT LIENS AS A MENACE TO COMMERCE

By C. J. FOREMAN

THE most difficult problem confronting our American states today is the proper adjustment of law to the economic rights of industry. It need hardly be said that each one of these states in working out that adjustment has been influenced by conditions peculiar to its own industrial environment. Whether one is tracing the history of the rent lien, or any other legal right or privilege, one will find that the persistent evolution in law is making that adjustment more complex and more difficult to maintain. The rights of property owners have been constantly encroaching upon freedom of trade, and simultaneously the privileges of the purchasing public have been correspondingly restricted. The task of government lies in checking the predatory activities of both the producing and the trading classes.

Fortunately, the earliest type of rent lien is to be found in the legal history of the American colonies at a time when the adjustment of government to the economic rights of the individual assumed its simplest form. That is to say, the line between governmental restrictions, on the one side, and the industrial liberty of the individual, on the other, was dictated largely by the economic principles embodied in the English and American common law. It was but the logic of history that the English people, through ages of struggle and experience under simple methods of production, should have recognized and incorporated into their common law the fundamental principles which are now recognized as underlying our present economic system. Among these principles are to be found the economic laws of supply and demand, of free trade, of free competition, of free contract, of free prices, and of free markets. In other words, whether Englishman or American, one had only to produce goods and not interfere with trade, commerce, markets, and the property of other men. These legal axioms were essential rules in the common law by which the channels of commerce were kept open and freedom of competition enforced. In a word, the landlord's rent lien under the common law, following the age-long rule, did not throw out of balance the proper adjustment of government to the economic rights of industry. Trade in agricultural produce was free and governed largely by economic laws.

Stated explicitly, the landlord's lien rested upon the ancient common law right of *distress* or *seizure*; but no lien was established under the law until he had made his right good by actual seizure and distraint of the tenant's property. It must be emphasized here that this right of possession under the common law was the very essence or basis of the rent lien and distinguishes the common law lien, as such, from the statutory lien which came at a later time. Moreover, the landlord lost his right of seizure after the goods were removed from the premises, for he could not follow the property after it had entered into the field of commerce. Clearly, therefore, the rights of the landlord did not interrupt or interfere with freedom of commerce after the tenant had disposed of his property in the market.

As a result of the growth of individualism and the spirit of democracy, the common law lien gradually grew in disfavor in certain sections. Tenants often

regarded it as a pernicious measure which enhanced unduly the rights of the landlord. Consequently, in several states it was finally abolished. On the other hand, the landlords themselves regarded the common law provision as inadequate and demanded more effective methods of rent collection. Where the latter view prevailed and the landlords were politically strong, the transition to the statutory lien was simple and rapid. The common law remedy was often given a more definite form by direct legislation, and in many states, particularly those producing cotton, tobacco, and wheat, more radical statutory provisions were adopted.

Such legislation in favor of landlords is of great economic significance, for at least 40% of the agricultural products in the United States are subject to these statutory rent liens. It need hardly be said that in times of agricultural distress, as at present, when tenants are hard pressed to meet their obligations to landlords, the scope of the rent lien becomes of vital concern both to landlords and to the purchasers of a tenant's products.

At the present time the landlord's rent lien may originate in, and receive its legal sanction from, any one of three distinct sources. The lien may rest, in the first place, wholly upon the common law claim. This type of lien still exists in eastern states carrying on various forms of diversified farming. In the second place, it may be entirely the result of specific statutory enactments within particular states. As interpreted by the courts, this statutory lien often holds liable for rent any person purchasing "a product in the possession of the tenant of leased premises." Needless to say, this statute would be difficult to enforce against the daily customer of a milk peddler or a truck gardner. Indeed, the agricultural conditions prevailing under diversified farming might prevent enforcement of this rule. Consequently, this form of lien has developed most rapidly in sections depending on specialized farming and the raising of two or three staple crops. Just what will be the result of this conflict between diversified farming and the statutory lien no one can foretell, but, in the end, legal rules must work in harmony with existing agricultural conditions. Finally, irrespective of these two previous sources, the rent lien may owe its existence to, and receive more elaborate means of enforcement through, a special or particular rent contract between the landlord and tenant. Obviously this contract lien is used to supplement the first two in regions where landlord rule is paramount and tenants bargain at a disadvantage. By way of contrast, the first or common law lien is not to be condemned, but the last two are constantly subject to legislative and judicial tinkering and often seriously interfere with the freedom of commerce.

In order to obtain a proper perspective of this relation between the rent lien and commerce, it is necessary to point out that the landlord's statutory right presents three different aspects for the consideration of the state courts: First, where the statutory claim has been enforced by distraint or by attachment—a procedure similar to that followed under the common law—and the landlord has entered into possession of the tenant's goods, his right is recognized, of course, as being fully as secure against their removal and sale to a third person as under the common law lien after the landlord's distress has been levied. There is yet no interference with commerce because the goods have not been sold or removed from the premises.

Second, it seems to be the general

opinion of the judges, that, if the purchaser has received direct notice of, or is fully aware of the existence of the rent lien, although the property has not been seized by the landlord, the former should be subject to its operation, and liable to civil action for the claim upon the property purchased. This is the general attitude except in those states which follow the common law rule in their legislation on this point and usually possess statutory provisions limiting the commencement of the lien or its effective enforcement to the period of such distraint or attachment. Such a ruling is contrary to, and a distinct advance over, the previous principle taken from the common law, and marks therefore the breaking of new ground in the evolution of the statutory lien. Furthermore, it marks the first step in the procedure by which the courts have given the landlord the right to follow the tenant's property into the hands of purchasers and to interfere with freedom of commerce.

Third, between the commencement of the lien at the beginning of the tenancy and the point or time at which distraint or attachment for its enforcement is made, or at which notice is given to the prospective purchaser, there is under the earlier types of this form of lien an interim in which the lessor has only a mere lien, or statutory claim, but neither title to, nor possession of the tenant's property. For the time being, therefore, the landlord's right by statute, unless amplified through constructive interpretation in the courts, is not paramount to the interests acquired by a good-faith purchaser of the property and is quite comparable in this respect to the lessor's right under the common law.

Relative to this third phase, our analysis shows the statutory principle to be at fault. The exact status of the landlord's rent lien upon goods disposed of by the tenant to a good-faith purchaser has always lacked uniform interpretation, and it is obvious that the early forms of the statutory lien are, just at this point, wholly inadequate in their operation, in case the tenant's property is removed for the purpose of sale. Especially is there ground in each state for a divergence of legal opinion concerning the question whether the purchaser, without direct and actual notice of the rent claim, is subject to forfeiture of some part of the property, so obtained, or liable, if he has subsequently disposed of it, for value to the extent of the lien. The courts, as a whole, are greatly at variance in their interpretation of the exact character and extent of the lien at this particular point; and it is patent that this third phase, embodying as it does certain constructive tendencies relative to the evolution of the statutory lien, furnishes material of unusual importance to the present topic.

It has seemed appropriate, therefore, to present somewhat in detail the history and present form of the lien in each state. And consequently the relative bearing of the statutes, as exemplified by their interpretation and actual enforcement against purchasers of the tenant's property, has been taken as the basis of our analysis and classification of the various stages or forms in which it appears. Following the plan here laid down, the legislative enactments and judicial opinions in the various states, providing definite means of enforcing the statutory lien, may be classified into at least five divisions, indicating comparatively the legal status of the different forms of the statutory lien now extant in many of our states, and also representing to a large extent the different periods or stages in the evolution of the more extreme types of liens to be

found at the present time in certain individual states.

I The tenant, prior to the landlord's distress, may dispose of his property exempt of the lien; and good-faith purchasers thereof, with knowledge of the rent claim, are not made liable by statutes or legal decisions if such property is removed immediately from the leased premises.

II Good-faith purchasers, with notice of the lien, are rendered liable to forfeiture of property purchased, but not, if disposed of, for any part of the value thereof.

III Good-faith purchasers, with notice of the lien, are rendered liable for value; those without notice, by constructive interpretation, are made liable to forfeiture of property purchased, but not, if disposed of, for any part of the value thereof.

IV Good-faith purchasers, without such notice, by constructive interpretation—a final result of the evolution in judicial opinion— are rendered liable, with certain exceptions, for property purchased, or, if disposed of, for the value thereof to the extent of the lien.

V Bona fide purchasers, without such notice, are made liable by statute for property purchased, or, if subsequently disposed of, for value to the extent of the lien.

Much of the evolution of the rent lien, as here classified, depended in no small way upon the definition of what constituted a good-faith purchaser. A good-faith purchaser is defined in the first division as that term was interpreted within the meaning of the common law. So defined, he is one who has purchased the tenant's property for a valuable consideration without the intention of depriving the landlord of his security or of preventing in any manner the proper collection of his rent. In fact, in the first division of our classification, the common law view may be said to prevail; and the term bona fide purchaser includes, according to the decisions, a good-faith purchaser either with or without notice of the rent claim before the landlord had attached the tenant's goods. But the definition of a good-faith purchaser soon underwent a radical change; and, perhaps, most lawyers today would say that it is impossible to have a good-faith purchaser with notice of the rent lien. But the common law guarded most jealously the principles of freedom of trade and of contract; and the innocent purchaser of that time was one who had no intention of depriving the landlord of his security or of preventing the collection of his rent. Obviously, the evolution of the definition of a good-faith purchaser did much to interfere with the important right of the individual to freedom of contract and of trade. Consequently, in the remainder of this classification this term refers solely to the good-faith purchaser without such notice.

Certainly under the common law ruling adopted by the states in the first division of our classification, the landlord was usually obliged to distrain the tenant's property before it had been removed from the premises, or at least before it had entered into the channels of trade and commerce. But the law leaned heavily toward the side of the landlord, and many judges soon accepted the view that "a person who purchases a crop which is in the possession of the tenant of the leased premises can hardly be called a bona fide purchaser." After judicial interpretation had once broken new ground, it is equally clear that the remaining divi-

sions of our classification trace the various stages in which the rent lien has been permitted to interfere in a most pernicious manner with the economic principles of freedom of contract, of competition, and of trade.

In the last group of this classification are included statutes which, speaking comparatively, are of a very extreme and arbitrary nature. It is true that, in certain states, they represent the final result of a series of legislative enactments intended to fortify the landlord against the subversive influences of peculiar local conditions which prevent the proper enforcement of his rent lien; but it must be conceded, nevertheless, that such statutes disclose upon analysis the most radical forms of legislation to be found in our states relative to the statutory rent lien. Being positive and concise in terminology, as a rule, they leave little to be determined through constructive interpretation by the courts and, therefore, have been presented in the last division of our classification as embodying the final stage of legal evolution—the most rigid and comprehensive type of this form of rent lien.

Good-Faith Purchaser Not Liable

The earliest and simplest form of the statutory rent lien, with its provisions drawn largely from the common law, marks a state of transition from the ancient method of collecting rent to the later radical remedies. Of its principles, one is presented here as the distinguishing characteristic of this first form. It is usually conceded under the common law that property, purchased in good faith prior to the landlord's levy and removed from the leased premises, shall be free of the rent claim. This rule often appears as the controlling principle in this more primary type of lien, and the line thus drawn, between the rights of the landlord and those of the good-faith purchaser over property obtained from the tenant, is to be taken as the standard in weighing the economic significance of this and subsequent forms of the statutory lien. For the added purposes of contrasting more sharply these various stages, the legal status and the economic importance of this first principle is to be emphasized by an examination of selected examples.

As late as 1879, the above principle was applied in Mississippi to all property of the tenant, who could "sell, dispose of, or incumber the same *bona fide* . . . notwithstanding the existence of a debt for rent."[1] His right was "co-extensive with that of any other debtor both as to use and sale."[2] These were positive rulings. Yet a few years later the Supreme Court, by announcing with respect to goods on leased premises that the purchaser with notice of the rent claim became subject to the landlord's lien, practically abrogated for the time being this important principle.[3] In the code of 1880 was included a specific lien in agriculture; but the old method of attachment was retained on goods and chattels other than agricultural products. This fact was commented upon by the Supreme Court, and finally in *Richardson & May* v. *S. L. McLaurin*,[4] while protesting that it violated the "legislative and judicial understanding of the law," the common law principle of the two early cases was resurrected and applied, with the exception of agricultural products, to all property of the tenant.[5]

In the legal history of Virginia, North Carolina, and Kentucky—states which

[1] *Marye v. Dyche*, 42 Miss. 347 at 378 (1869).
[2] *Stamps v. Gilman & Co.*, 43 Miss. 456 at 471 (1870).
[3] *Cooper v. Baker*, 54 Miss. 637 at 638 (1877).
[4] 69 Miss. 70 at 73 (1891).
[5] The agricultural lien belongs to a more advanced type and will be considered in the fourth division.

drew their early laws largely from a common source—may be found the principle common to this division. The Virginia statute of 1748 allowed a levy upon goods fraudulently removed from leased premises, provided they "had not been *bona fide* sold. If they had been sold in good faith, they were not liable to be distrained."[6] Unless such property were seized while on the premises, the good-faith purchaser was definitely protected. However, Virginia had omitted this important provision from the Code of 1849, and her courts are, therefore, at liberty to follow the constructive interpretations of states possessing advanced stages of the statutory lien. Moreover, more radical rent liens were adopted later by North Carolina and Kentucky.

By a Georgia statute of 1873, the landlord was vested with both a general and a special rent lien. The general lien was to "take precedence of no lien of older date except as to the crop raised on the premises."[7] But by the latter statute, landlords were given "a special lien for rent on crops made on land rented from them, superior to all other liens except liens for taxes."[8] And furthermore, the landlord's right to pursue such property, if it has passed to third persons, has, except in the case of good-faith purchasers, been amply sustained.[9]

In the latter instance, purchasers without notice of the lien were favored.[10] The statutes did not operate upon the title acquired by a bona fide purchaser, and a vigorous defense was made of his rights. It was explained that "Cotton is almost like bank bills, promissory notes, or bonds, passing by delivery, in the due course of trade, through different hands."[11] Thus, by successive rulings the trading classes proper were thoroughly safeguarded in this state against the extension of the landlord's lien.[12] Relative to the purchaser with notice of the lien no definite construction has yet appeared.[13]

Further examples may be added from northern states. The first form of the statutory lien has been in force in Pennsylvania for nearly a century. Without surprise one learns that the laws of the neighboring states of Delaware and New Jersey contain provisions similar to those quoted from the statutes of Pennsylvania.[15] And of like nature were the early statutes of New York prior to the abolition of the rent lien.[16] The resemblance in textual structure here, as in the statutes of other eastern states previously observed, suggests again their common origin—the English common law.

Good-Faith Purchaser with Notice of Lien Liable for Property

The important historical principle protecting the purchasing public, so prominent in the first form of lien, does not prevail in the second stage. The lien follows the tenant's goods into the hands of purchasers possessing definite knowledge of the rent claim; but, having disposed of such property, they are not

[6] *Mitchell v. Franklin & Barnett*, 26 Marshall's Reports (Ky.) 477 at 482 (1830); Va. Code 1819, p. 451 Notes r. s.

[7] Code 1873, secs. 1977, 2286.

[8] Code 1911, sec. 3340; Code 1873, *supra* n. 7.

[9] *Colclough and Co. v. Mathis*, 79 Ga. 394, at 396 (1887); *Worrill v. Barnes*, 57 Ga. 404, at 406 (1876); *Saulsbury Respess & Co. v. McKellar*, 59 Ga. 301, at 306 (1877).

[10] *Clark and Cole v. Dobbins*, 52 Ga. 656 at 658, 659 (1874).

[11] *Thornton v. Carver*, 80 Ga. 397 at 400; 6 S. E. 916 (Sup. Ct. Ga.) (1888).

[12] *Worrill v. Barnes*, *supra*, note 9; *Holmes v. Pye and Co.*, 107 Ga. 784 at 786 (1899); *Lancaster v. Whiteside*, 108 Ga. 801 (1899).

[13] *Bennett Lumber Company v. Martin*, 132 Ga. 491 (1909); *Lancaster v. Whiteside*, *supra*, note 12.

[14] Penn. Purdon's Digest, Vol. 2, p. 2176.

[15] Del. Rev. Code 1852–1893, Ch. 120, sec. 23; 1 N. J. Gen. Stat. 1709–1895, p. 80, sec. 11; p. 1210, sec. 14.

[16] 2 R. S. 1846, p. 595. secs. 16, 17.

liable under the statutes for its value. This ruling may be taken as a distinct concession in the interest of landlords.

The Kentucky landlord is favored with two statutory rent liens, one of which is included here. The Revised Statutes of 1852 retained the orthodox principle of the first division. But the presence of an additional—a preference lien, indicating the pressure of economic forces—may be taken as the harbinger of a more radical remedy.[17] In almost contiguous sections may be observed two provisions which protected the conflicting interests of the landlord and the good-faith purchaser. The first contains the special lien, which was later to rank as a preference lien of great importance.[18] And in the succeeding section, but one, occurs the historical exception: "But the landlord's lien shall not extend beyond fifteen days after the removal of the property, nor against the bona fide purchaser."[19] The specific lien, through interpretation and amendment, continued to clothe the landlord with additional rights until even title to the produce, in certain instances, was vested in him. The second provision was, however, destined soon to disappear entirely from the statute book;[20] and the landlord was given the right "to enforce his lien against the property wherever found."

In the western State of Arkansas the landlord's crop lien is not enforcible against purchasers possessing no knowledge of his claim;[21] but having notice, their liability for value in equity, if the property has been disposed of, depends upon whether the transfer to another party occurred as a bona fide business transaction. That is, the property may escape the landlord's lien through the ordinary channels of trade. Most pertinent, however, is the fact that a remedy exists in equity. In *Reavis* v. *Barnes*,[22] although the defendant was aware of the lien, "the plaintiff's only remedy . . . was by specific attachment whilst it (crop) remained in the defendant's possession, or after the sale of it, by suit in equity for the payment of the rent out of the proceeds." Again, in 1904, a suit in equity was allowed against a purchaser with notice of the lien.[23] So far this procedure is peculiar to Arkansas, and represents a unique attempt on the part of the judiciary to administer justice between landlord and purchaser. But it is obvious, however, that it would be impossible to classify this remedy as a statutory lien.

At this point, it is proper to note the important function of the constructive notice. A strict interpretation would require that notice to the purchaser of the existence of the rent lien should be actual and direct; but by a more radical construction "due notice" may be implied from the evidence pertinent to the case, and the resulting decisions favor largely the contending landlords. If at the time of its sale the property still remained on the demised premises, the

[17] Ky. R. S. 1852, sec. 11, pp. 441–442.

[18] Ky. R. S. 1852, sec. 14.

[19] Ky. R. S. 1852, sec. 16.

[20] In 1893, it was provided that "the landlord shall have a superior lien upon the property so removed for fifteen days from the date of its removal, and may enforce his lien against the property wherever found." (Carroll's Ky. Stat. 1899. Sec. 2317 Act of Feb. 7, 1893, amended by Stat. of Ky. 1909, limiting amount of lien). But it does not appear that a purchaser with notice, who had declined to pay rent upon an implied contract through the tenant, was made liable for the value of the property. (*Ballard v. Am. Hemp Co.*, 30 Ky. Law Rep., 1081.

[21] *Puckett v. Reed*, 31 Ark. 131 (1876); *Bledsoe v. Mitchell*, 52 Ark. 158 (1889). In the more recent decisions, knowledge of the existing tenancy has usually been taken as notification of the landlord's lien. (*Judge v. Curtis*, 72 Ark. 132, at 136 (1904); *Pape v. Steward*, 69 Ark. 306, at 309, 310 (1901); *Neal v. Brandon*, 70 Ark. 79 (1902); *Hunter v. Mathews*, 67 Ark. 362, at 364 (1899); *May v. McCaughey*, 60 Ark. 357, 361 (1895); *Cocke v. Clausen*, 67 Ark. 455, at 463 (1900).

[22] 36 Ark. 575, at 576 (1880).

[23] *Judge v. Curtis, supra* n. 21.

circumstance was soon deemed fair and sufficient notice. But if sold external to the premises, the courts found more difficulty in charging the purchaser with notice. An abstract legal formula of notice was soon made available; and concomitant with the evolution of the notice may be traced the resulting tendency to hold the purchaser liable for the value of such property.

Good-Faith Purchaser with Notice Liable for Value

In the third stage of this statutory lien, good-faith purchasers with notice, by constructive interpretation, are made liable for value if the property purchased has been transferred to other persons. This principle, although concise and apparently simple in its application, is so extended and supplemented by the constructive notice as to apply in any circumstance whatsoever possessing semblance of a notice; and, consequently, courts are able to impose the penalty for its violation upon an otherwise innocent purchaser.

In the early decisions of Illinois, the landlord could recover property subject to his lien in the hands of purchasers with notice. And if he had gained a right of possession in the property, the purchasers might be sued for value. Otherwise, the only action with which they could be charged would rest solely on the ground of fraud.[24] The courts were confronted, however, with other issues in which the purchaser was entirely without notice of the lien. In *Howe* v. *Clark* the lien did not follow crops into the hands of the purchaser without notice;[25] yet three years later this principle was annulled by an important concession in favor of the landlord—a distinct contribution. While the landlord, by virtue of his lien, might follow the property into the possession of the purchaser "and distrain for his rent, he can not maintain a personal action for damages."[26] It is here emphasized, however, that the purchaser of crops without notice of the lien is made secure against an action by the landlord for value. This opinion is quite in accord with the wording of the statute.[27]

The courts of this State were probably the first to apply in this relation the above-mentioned legal formula in the evolution of the constructive notice. In *Watt* v. *Scofield*[28] and *Prettyman* v. *Unland*[29] appeared the abstract theory: "It is the common doctrine, that what is sufficient to put a purchaser upon an inquiry is good notice of whatever the inquiry would have disclosed." Other decisions have gone far in applying this doctrine to concrete instances. The innocent purchaser is placed necessarily upon his guard, lest he accept property unlawfully; and, finally, in suits for trover or conversion a penalty is created for lack of vigilance and inquiry on his part equivalent to that attaching to a purely fraudulent act which involves the palpable attempt to deprive the landlord of his security.[30]

Alabama changed gradually to a statutory lien, which extended to the tenant's crops "in the possession of a purchaser from him with notice of the lien of the landlord."[31] Yet it was clearly not designed to include the purchaser

[24] *Watt v. Scofield*, 76 Ill. 261, at 265 (1875); *Frink v. Pratt and Co.*, 130 Ill. 327, at 331 (1889); *Finney v. Harding*, 136 Ill. 573, at 585 (1891).

[25] *Howe v. Clark*, 23 Ill. App. 145, 148 (1887).

[26] *Finney v. Harding*, *supra*, note 24, at 586 (1891).

[27] Ill. R. S. (Hurd, 1881) chap. 80, secs. 31, 34; Ill. Rev. Statutes (Smith-Hurd, 1925) Ch. 80, secs. 16–30.

[28] *Supra* note 24, at 264 (1875); see also *Hunter v. Whitfield*, 89 Ill. 229, at 233 (1878).

[29] 77 Ill. 206, at 210 (1875).

[30] *Carter v. Andrews*, 56 Ill. App. 646, at 648 (1894); *Reinhardt v. Blanchard*, 78 Ill. App. 27 (1898); *Faith v. Taylor*, 69 Ill. App. 419–420 (1896).

[31] Clay Dig. 1843, p. 506, secs. 2–6; Code 1852, secs. 2533–2535; Rev. Code, 1867 secs., 2961–2963.

without notice of the rent claim.[32] The Supreme Court, however, gave encouragement at an early period to the evolution of the constructive notice; and much to the detriment of the purchaser appeared the common legal formula, "that whatever is sufficient to put a party upon inquiry, is sufficient to charge him with notice."[33] For a time the latter could, by disposing of such property prior to the landlord's levy, escape all liability for the value thereof. An adverse ruling, it was said, "would too seriously embarrass the sale of agricultural products."[34] However, these decisions were within a brief period totally disregarded: "By removing or converting the crop, with notice of the landlord's lien," runs the new doctrine respecting the purchaser, "he has done an unlawful act, injurious to the landlord, and must answer for the damage his act produces."[35] This excerpt embodies the prevailing rule on this point.[36]

In Missouri, through the apparent cooperation of legislature and judiciary, the evolution of the rent lien has been rapid. In *Dawson* v. *Coffey*[37] the purchaser of the tenant's crops with notice was liable for value, and the court was guided largely by the definition of the constructive notice as adopted in Illinois.[38] However, to protect the bona fide purchaser without notice, the legislature provided that "the purchaser of crops is not liable to the landlord in action for the value thereof unless he had knowledge that the crops were grown on demised premises."[39] This has been taken by the court as "strongly persuasive that there should be no embarrassment upon the bona fide sale, purchase and interchange of agricultural products which enter so largely into commercial transactions."[40] So far, in the opinion of the court, trade in agricultural products was not to be obstructed by any provision of the statute. Moreover, in the revised statutes of both Kansas and Missouri for 1909, the landlord was given added remedies for the recovery of the crop itself, or of value from the purchaser with notice of the lien.[41] Through the cooperation of the legislature, the liability of such purchasers is made definite and certain, and the landlord's remedies are fully as effective as those found in Alabama and Illinois.[42]

Good-Faith Purchaser Without Notice Liable for Value

Through the gradual evolution in judicial opinion the good-faith purchaser

[33] *Governor v. Davis*, 20 Ala. 366, at 368, 369 (1852); *Foxworth v. Brown Bros.*, 120 Ala. 59, at 70 (1897); *Lomax v. Le Grand & Co.*, 60 Ala. 537, at 542, 544 (1877); *Scaife and Co. v. Stovall*, 67 Ala. 237 (1880); *Andrews Manfg. Co. v. Porter*, 112 Ala. 381, at 384 (1895).

[33] *Lomax v. LeGrand and Co.*, *supra* n. 32, at 543, 544 (1877); *Townsend v. Brooks*, 76 Ala. 308, at 311 (1884); *Kyle v. Ward*, 81 Ala. 120, at 122 (1886); *Warren & Co. v. Barnett*, 83 Ala. 208, at 212 (1887).

[34] *Blum v. Jones*, 51 Ala. 149, at 151 (1874); *Thompson v. Spinks*, 12 Ala. 155, at 158, 159 (1847); *Dulany v. Dickerson*, 12 Ala. 601, at 603, 604 (1847).

[35] *Hussey v. Peebles*, 53 Ala. 432, at 436 (1875).

[36] *Thompson v. Powell*, 77 Ala. 391, at 392 (1884); *Lake & Marshall v. Gaines & Co.*, 75 Ala. 143, at 147 (1883); *Hurst and McWhorter v. Bell and Co.*, 72 Ala. 336 (1882); *Kennon v. Wright, Frazier & Co.*, 70 Ala. 434, at 436 (1881); *Boggs v. Price*, 64 Ala. 514 (1879); *Lavender v. Hall*, 60 Ala. 214, at 217 (1877); *Westmoreland & Trousdale v. Foster*, 60 Ala. 448 (1877); *Hudson, Kennedy & Co. v. Vaughan's Executors*, 57 Ala. 609, at 613 (1877); *Foxworth v. Brown Bros.*, 114 Ala. 299 (1896); *Smith v. Hilton*, 147 Ala. 642 (1906); *Waite, La Fils & Co. v. Corbin*, 109 Ala. 154 (1895); *Andrews Mfg. Co. v. Porter*, 112 Ala. 381 (1895); *Couch v. Davidson*, 109 Ala. 313 (1893); *Ehrman v. Oats*, 101 Ala. 604 (1893).

[37] 48 Mo. App. 109, 110, 111 (1892).

[38] *Watt v. Scofield*, *supra* note 24.

[39] R. S. 1893, sec. 6384.

[40] *Toney v. Goodley*, 57 Mo. App. 235, at 243 (1894).

[41] Mo. Rev. Stat. 1909, sec. 7896.

[42] In Kansas he may recover the value of the crop purchased to the extent of the rent due and damages. Kan. Gen. Stat. 1909, sec. 4715; Kans. R. S. 1923, ch. 67, sec. 526; See *Neifert v. Ames*, 26 Kan. 515 (1881); *Stadel v. Aikins*, 65 Kan. 82 (1902); *Maelzer v. Swan*, 75 Kan. 496 (1907); *Harmon v. Payton*, 68 Kan. 67 (1903); *Eckhardt v. Taylor*, 90 Kan. 698 (1913); *Coulson & Coulson v. Hinton & Hinton*, 110 Kan. 653 (1922); *Nessley & Co. v. Taylor*, 63 Kans. 674 (1901).

without notice, in the fourth stage, if he has disposed of property subject to the lien, is rendered liable for value to the amount of the rent claim. And in certain cases ignorance of a tenancy or of the existence of a lease is not an adequate defense for a purchaser of such crops.

The Mississippi statutes provide for the enforcement of a lien upon agricultural products of leased premises, wherever found;[43] but it was maintained for a time that the purchaser of such goods, unless he had intentionally defeated the lien by disposing of them was not liable for value.[44] With two positive decisions on the same issue[45] the sale of such property in the open market was thoroughly safeguarded. Unfortunately, judicial opinion was influenced by a change in the personnel of the Supreme bench. In *Dunn* v. *Kelly*[46] an irregular and possibly accidental opinion served well the purpose of a precedent. And by the later decisions in *Eason* v. *Johnson* and *Warren* v. *Jones*, neither ignorance of the tenancy nor false statements by the tenant would defeat the claim of the landlord; for "notice by the purchaser of agricultural products could make no difference, and, in order to protect the landlord, his right must be made to depend not on notice, but on the fact that the defendant purchased what the landlord had a lien on, and thus the law is settled."[47]

[43] Codes, 1892, sec. 2513; 1906, sec. 2850.

[44] *Westmoreland v. Wooten*, 51 Miss. 825, at 828 (1876); *Dozier v. Lewis*, 27 Miss. 679, at 683 (1854); *Cloud v. State*, 53 Miss. 662 (1876); *Wooten v. Gwin*, 56 Miss. 422, at 430 (1879).

[45] *Westmoreland v. Wooten*, and *Wooten v. Gwin*, *supra*, note 44.

[46] 57 Miss. 825 (1880).

[47] *Warren & Montgomery Bros. v. Jones*, 70 Miss. 202, at 209 (1892); *Newman v. Bank of Greenville*, 66 Miss. 323, at 325 (1889); *Eason, Watkins & Co. v. Johnson*, 69 Miss. 371 (1891).

[48] *Walker-Durr Company v. Mitchell*, 97 Miss. 231 (1910); *Robinson Co. v. Weathersby*, 101 Miss. 724 (1911); *Peets & Norman Co. v. Baker*, 95 Miss. 576 (1909); *Judd v. Delta Grocery & Cotton Co.*, 133 Miss. 866, at 868 (1923).

Logically or otherwise, judicial interpretation worked a marked change here in the evolution of the agricultural lien and deliberately placed a legal obstruction in the way of trade in agricultural products.[48]

A simple statutory lien in Iowa[49] in which possession of the tenant's property does not pass to the landlord, was said to have the same virtue "that existed in those at common law, when they were accompanied by possession."[50] This extreme comparison made the plaintiff's lien as secure as if he had taken possession of the tenant's property. However, property sold in the ordinary course of trade was exempt from the lien, but the total stock of goods preserved merely for sale—the stock "in *mass*, and not in *detail*," was found to be within its scope.[51] This distinction marks the line between two principles governing the sale of the tenant's property;[52] and in this case, the interests of trade have been liberally and broadly defined.[53] Upon crops, however, the original definition of the lien is fully sustained.[54] In this relation another differentiation appeared. If premises were leased wholly for exhibiting cattle and hogs for sale, the latter being disposed of in the ordinary course of business, the purchaser could not be held.[55] Here again, the lien applies to the stock "in mass" but not to that distributed in the regular course of trade. This dis-

[49] Code 1897, sec. 2992.

[50] *Grant v. Whitwell, Marsh & Talbott*, 9 Iowa, 152, at 157 (1859).

[51] *Grant v. Whitwell, Marsh & Talbott*, *supra* note 50 at 157, 159.

[52] *Nesbitt v. Bartlett*, 14 Iowa, 485, at 487 (1863).

[53] *Grant v. Whitwell, Marsh & Talbott*, *supra* note 50.

[54] See also *Richardson Bros. v. Petersen*, 58 Iowa, 724, 726, 727 (1882); *Holden v. Cox*, 60 Iowa, 449, at 452 (1883); *Evans v. Collins*, 94 Iowa, 432, at 434 (1895); *Blake & Gustafson v. Counselman & Company*, 95 Iowa, 219, at 222 (1895).

[55] *Thompson v. Anderson*, 86 Iowa, 703, at 707, 708 (1892).

tinction has been preserved. The transfer by the tenant of any personal property not kept strictly for the purpose of sale, does not, even in the open market, affect or destroy the rent lien.[56]

An act of Texas, before its admittance, became by interpretation the embodiment of an extreme form of rent lien. An exemption clause forbade its extension "to any goods, wares and merchandise of a merchant, or trader, after the same shall be sold in good faith and removed from the premises."[57] In 1870, this law was applied in terms that left no doubt of the intention of the court: "Good faith and innocence, and ignorance of the statutory lien in this or in any other similar case," runs the decision, "forms no defense to the purchaser."[58] This opinion referred to cotton obtained not from the tenant, but in the open market,[59] and the absolutely innocent purchaser was deprived of the property so obtained. The Court was fully aware of the harshness of its decision.

Later statutes conferred upon the landlord a definite preference lien upon agricultural products; but with the above important exception again incorporated.[60] This clause, after due interpretation, prohibits a lien on goods sold "by the tenant" provided he be "a merchant, trader or mechanic."[61] But merchants obtaining agricultural produce from leased lands are doubtless subject to the agricultural rent lien. This fact appeared somewhat later. The tenant is subject to a heavy penalty if he removes his property from the demised premises without satisfying the rent claim,[62] but if he disposes of his goods, the courts will protect him in the possession of the proceeds. For the landlord's lien does not extend "to the proceeds of the sale for such products. Such sale did not displace his lien. He could have foreclosed his lien upon the cotton in the hands of the purchaser . . . or he could have held the purchaser for the value of the cotton."[63] These decisions bring out clearly the extreme and arbitrary interpretations placed by the courts upon a statute couched in very moderate terms.[64]

Good-Faith Purchaser Without Notice Liable by Statute

The most rigid type of the statutory lien is to be found at the present time in the states of Tennessee, Florida, Maryland, Kentucky, Indiana and North Carolina. The statutes of these states in express terms make the landlord's rent claim paramount to the rights of any purchaser of property covered by the rent lien.

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[56] *Frorer v. Hammer, Drake & Wood*, 99 Iowa, 48 (1896); *Hays v. Berry & Porter & Haines & Lyman, Interveners*, 104 Iowa, 455, at 456 (1898); *Staber v. Collins & Seibold*, 124 Iowa, 543, at 545 (1904); *Beck v. The Minnesota & Western Grain Co.*, 131 Iowa, 62, at 65 (1906); *Neeb v. McMillan*, 98 Iowa, 718 (1896); *Church v. Bloom*, 111 Iowa, 319 (1900).

[57] Hartley's Dig., sec. 5207; Paschal's Dig., sec. 5027.

[58] *Mathews v. Burke*, 32 Tex. 420, at 434 (1870).

[59] *Mathews v. Burke, supra*, note 58, at 432.

[60] Laws 1874, art. 3238; *Marsalis & Co. v. Pitman*, 68 Tex. 624, at 627 (1887); *Freeman v. Collier Racket Co.*, 101 S. W. 203 (Sup. Ct. Tex., 1907); 105 S. W. 1129, at 1130 (Civ. App. Tex. 1907).

[61] A merchant's sale of his entire stock, although made in good faith, was not to be considered as "in the regular course of business." (*Marsalis & Co. v. Pitman, supra* note 60). Nor one in which the merchant closed out his entire stock in lots and quantities as best suited his purchasers. The landlord's lien was not, therefore, divested by such transactions. (*Freeman v. Collier Rackett Co., supra* note 60).

[62] Rev. Stat. 1902, sec. 3236; *Leverett v. Meeks*, 68 S. W. 302, at 303 (Civ. App. Tex. 1902); *Mensing Bros. and Co. v. Cardwell*, 75 S. W. 347, at 349 (Civ. App. Tex. 1903); *Wilkes v. Adler Goldman & Co.*, 68 Tex. 689 (1887).

[63] *Estes v. McKinney*, 43 S. W. 556, at 557 (Civ. App. Tex. 1897); *Zapp v. Johnson & Dick*, 87 Tex. 641 (1895); *Newman v. Ward*, 46 S. W. 868, at 869, 870. (Civ. App. Tex. 1898).

[64] Texas Revised Civil Statutes, 1925; art. 5222–5239; 5226.

Prior to 1857 purchasers of such property in Tennessee were not liable for value unless they had received notice of the lien.[65] In this last respect, the phrase "with notice of the lien" proved unsatisfactory to complaining landlords and was finally eliminated in 1879, making possible the most positive form of the rent lien then in existence.[66] The landlord also possesses a personal action against the purchaser separate and independent of the lien.[67] No provision has been made for the protection of the merchant or trader, or for his sale of such products in the open market. Finally, if perchance, he sells the property so obtained, he is subject to a severe penalty consisting of a fine, or possibly imprisonment—a severe burden which may befall a good-faith purchaser in the pursuit of his legitimate occupation.[68]

The more recent statutes of Kentucky and Indiana fall in this division. Kentucky vests the landlord with a crop lien in certain instances which "shall include a purchaser, without notice, of a growing crop or crops remaining on the premises, though severed from the land," but not "after it has been removed for the space of twenty days from the rented premises on which it was planted."[69] And in the neighboring State of Indiana whether rent is to be paid in kind or in money, title is vested in the landlord to that portion of the crop representing his rent, which may be enforced by a sale of the produce.[70] The tenant, however, after written notice to the landlord, may remove his share of the growing crop. If the rent is not payable in kind, he may dispose of "one-half of the crop growing or matured." It is emphasized that the statute precludes title to the landlord's share being vested in the tenant, and makes it necessary for purchasers of such crops to take notice of the lien so given, and that the removal and sale of such produce will amount to "a conversion thereof," in which case the purchaser will be liable to the landlord for value to the extent of the rent due or to become due.[71]

Finally, although the first form of this lien may be found in the legal history of North Carolina, the ultimate stage was reached at a comparatively early period in this State: "The title to all crops raised on the demised premises shall be held to be vested in the lessor until rent shall be paid, until all stipulations contained in the lease or covenant shall be fulfilled or damages in lieu thereof shall be collected." This lien entitles the landlord to recover such crops from persons who shall remove, purchase, or secure possession of them without consent of the lessor or his assigns.[72]

Summary

The statutory rent lien is in a state of constant evolution and the trend is away

[65] Tenn. Shannon Code (1917) sec. 3541, 3542; *Phillips v. Maxwell*, 1 Bax. (Tenn.) 31.

[66] Tenn. M. & V. Code, sec. 4283; Tenn. Laws 1879, ch. 72, sec. 5302.

[67] *Biggs & Moore v. Piper & Son*, 86 Tenn. 589, at 592 (1888); *Davis v. Wilson*, 86 Tenn. 519, at 521–522 (1888); *Richardson & Nelson v. Blakemore*, 11 Lea (Tenn.) 290; *Drake v. Cotton Oil Co.*, 5 Tenn. Civ. App. 314; *Ruston v. Lumber Co.*, 104 Tenn. 538.

[68] Tenn. Laws 1897, ch. 114; Tenn. Shannon Annotated Code (1918), vol. 5, secs. 5299–5303; *Ibid.* Code, 1922, pp. 605, 606.

[69] Ky. Statutes, 1909, sec. 4583; Ky. Carroll Statutes, 1922, Art. III, sec. 2325.

[70] *Gordon v. Stockdale*, 89 Ind. 240, at 244 (1883); *Scott v. Ramsey*, 82 Ind. 330, at 333 (1882); *Cunningham v. Baker*, 84 Ind. 597, at 600 (1882); *Chicago & West Michigan Railway Company v. Linard*, 94 Ind. 319, at 326, 327 (1883); *Switzer v. Miller*, 58 Ind. 561, at 564 (1877); Ind. Burns' Statutes 1914, sec. 8070.

[71] *Kennard v. Harvey*, 80 Ind. 37, at 40, 41 (1881); *Shelby v. Moore*, 22 Ind. App. 371, 372, 373 (1899); *Campbell v. Bowen*, 22 Ind. App. 562, at 566 (1899); *Gifford v. Meyers*, 27 Ind. App. 352, 354.

[72] N. C. Code (1883), vol. I, sec. 1754, 1859; *Montague v. Mial*, 89 N. C. 137, at 139 (1883); *Ledbetter v. Quick*, 90 N. C. 276 (1884); *Howland v. Forlaw*, 108 N. C. 567, 569, 570 (1891); *Rawlings v. Hunt*, 90 N. C. 270 (1884).

from the principles dominating the first form. Taken as the primary standard of comparison these principles, which prevent exploitation of the good-faith purchaser and definitely guard the interests of trade and commerce, were drawn largely from our original inheritance—the English common law; and, based on the early subsidiary law of our own states, have, therefore, in their favor the usage and custom of centuries. It may, however, be said without hesitation that in the first three divisions, the courts are alert and have devoted considerable effort to protect the interests of the commercial classes; but these activities are largely confined to the important decisions of the third division. Protests appear, usually from the minority of the court, to the effect that the statutes expose "the purchasing class to too harsh a measure of liability." It is also maintained that landlords have better opportunities to protect their rights and interests than purchasers would ordinarily have if they were charged with secret liens upon the property purchased; that produce is shipped from a distance to a commission firm with whom the purchaser deals exclusively; and that it would be impracticable and almost impossible for him to ascertain whether the crop was grown on rented premises, or, by virtue of other circumstances, is to be considered as subject to a rent lien.[73] But, nevertheless, concomitant with this evolution, has come the definite menace to trade in agricultural produce which reaches its logical conclusion in the radical statutes of the last group.

It may be proper at this point to suggest certain definite lines of legislation that may not be out of harmony with the demands of sound economics or the fundamental principles of jurisprudence, and for which precedents have been found in the various divisions discussed in the preceding pages:

1. From the standpoint of the landlord, the early forms of the statutory rent lien afford him in some instances a rather precarious method of rent collection. The statute should make it patent that his lien attaches from the beginning of the tenancy, and, that it therefore renders the landlord's claim paramount to all rights acquired subsequently while the property in question remains in the possession of the tenant.

2. It does not appear that the rights of either the lessor or the lessee will be in any way diminished, if the tenant were allowed, where rent is to be paid in kind, to remove and sell his portion of the produce, or, where a money rent obtains, to dispose of not more than one-half of the crop, either growing or matured. It seems obvious that the portion remaining on the premises should afford ample security for the landlord's claim.

3. Or upon the sale of his property, the tenant should be obliged to furnish an affidavit to the effect that the property so purchased is free from all liens. At the same time provision should be made for a fine of double the amount of the lien, which will reimburse the landlord and also punish the tenant in case he violates the statute.

4. Upon the tenant and other persons endeavoring to defraud the landlord of his interest should fall the penalty for the removal and sale of the crop rather than upon the good-faith purchaser. Definite legislation should prevent the removal of such property subject to the rent lien, unless the tenant has made satisfactory arrangements for paying the landlord's rent claim or until he has

[73] *Davis v. Wilson*, *supra* note 67, at 522 (1888); *Thornton v. Carver*, *supra* note 11; *Dulany v. Dickerson*, *supra* note 34; *Thompson v. Spinks*, *supra* note 34; *Blum v. Jones*, *supra* note 34.

received definite permission to sell the products in his posession.

5. In harmony with this form of legislation, it might not be out of place to suggest further that the rule common to the first division, exempting from the landlord's lien goods removed from the premises and sold to good-faith purchasers, contains the proper legislative principle and marks a course of interpretation just and equitable to the interests of both classes. This principle represents the common law rule of England and the common usage at an early period in our own states; and is, moreover, still retained in various parts of the country. It is urged that a return to this dominating principle of the first division would insure proper freedom in commercial transactions, prevent the shifting of rent claims upon good-faith purchasers, and preclude a definite conflict between two economic classes.[74]

The pertinency of this analysis can only be determined by an investigation of the facts. But when it is recognized that growth in legislation, differentiation in interpretation by the courts, and expansion of commerce and trade bring society face to face with new perplexities and new dangers at every step, it is difficult to conceive how the activities of the courts can ever be less than they are at the present time. On the contrary, it seems reasonable to assume that with each additional increment to the social product, and with the inevitable growth in population, the interpretations of the courts will become more complex. From the point of view of the landlord, the tenant, and the purchasing public, as well as from a consideration of the general welfare of the state, we may conclude that the preceding historical analysis and discussion is most pertinent. Not only does it emphasize the important fact that the considerations determining the evolution of the statutory rent lien root themselves in the economic conditions of each section, but it also suggests as a remedy definite lines of legislation and the abolition of the more radical types of rent liens to which legislation and constructive interpretation have given a definite legal basis. At least with the rapid rise in farm tenancy, the question should not be left to the evolution of judge-made law for solution. That the courts and legislatures of the various states have sought by so many different methods to establish a principle leading to a proper adjustment of the conflicting interests is an eloquent witness that its discovery is no less important than it is difficult.

[74] From still another point of view this principle would serve an excellent purpose. In their zeal to protect commercial interests, the courts, by following the common law rule, endeavored at first to exempt from the operation of the rent lien all goods of the tenant deemed proper subjects of commerce. This led to various distinctions in each State, and, even today, no definite notion can be obtained of what things or objects this rule would include. The terms "commerce" and "due course of trade" are given no definite meaning or scope. Property exempt from the lien may be restricted to the exchange of things wrought or manufactured; to the property of the merchant, trader and mechanic; to commodities dribbled out in retail trade; to goods sold on the open market. Or again, the objects of commerce may include products kept for sale rather than for use—a cow being kept partly for sale is therefore exempt; things sold in detail but not "in mass"; cotton which is "almost like bank bills, promissory notes or bonds"; and finally personal property "which so readily passes from hand to hand." The importance of segregating the objects of commerce is clearly recognized (and strong advocates appear at times in favor of such rulings); but there is a peculiar lack of consistency in the legislation and judicial interpretation of even a single state. A return to the more primary principle of the first group of liens would in a measure, therefore, relieve us of many unnecessary distinctions, divers collections of principles, and incongruous terms.

SOME ECONOMIC ASPECTS OF PUBLIC UTILITY HOLDING COMPANY FINANCIAL STATEMENTS: CONSOLIDATED INCOME STATEMENTS

By PAUL L. MORRISON

CONSOLIDATED balance sheets of public utility holding company systems were discussed in a previous article.[1] The conclusion was reached that the consolidated balance sheet as customarily prepared by holding companies and presented in their annual reports not only conveys little information of value to creditors and owners as to priority of claims against assets, but also tends to confuse and probably mislead. A more complex form was proposed tentatively in the belief that the complicated interrelationships of the modern holding company system are not accurately portrayed in the simple statement now used.

The form in which income statements of holding companies are presented is even more important than the form of the balance sheet because, in addition to being a part of the annual report of the company, the consolidated income statement is the most vital part of the modern prospectus used in the sale to the public of securities of a holding company.

Referring again to hypothetical companies A and B of the previous article, it will be recalled that each of these operating companies had capitalizations consisting of $1,000,000 of 5% bonds; $500,000 of 6% preferred stock; and $500,000 of common stock.[2] The income statement is repeated in Table XII.[3]

[1] 4 *Journal of Land & Public Utility Economics*, pp. 1–12. (Feb., 1928.)

[2] *Ibid.*, Table I, p. 2.

The income statement of Company H proper can be prepared to reflect (1) income accruing to it disregarding whether this is really received or not, (2) income actually received in cash (or its equivalent), or (3) income both received and accrued. For simplicity it is assumed that Table XII reflects the income statement of Company A or B for the first year of operation under the new system, that Company H has no other income nor any expenses other than financial, and that the operating companies paid 8% dividends on their common stocks during the year. Table XIII shows the income statement of the holding company prepared in the three ways suggested above, in parallel columns to make easy comparison among them.

TABLE XII. INCOME STATEMENT OF HYPOTHETICAL COMPANY "A"

Gross revenue	$450,000
Operating expenses, taxes, and retirements	290,000
Gross income (8% of $2,000,000)	$160,000
Interest on bonds (5% of $1,000,000)	50,000
Times interest earned	3.2
Net income	$110,000
Dividends on preferred stock (6% of $500,000)	30,000
Times preferred dividend earned	3.67
Balance for common stock	$ 80,000
Return on common stock	16%

The auditors proceed in the customary manner to prepare a consolidated work sheet of the income statements of Company "H," the holding company, and its two subsidiaries, Companies "A" and "B" (Table XIV). The statement ap-

[3] *Ibid.*, Table II, p. 2. The tables in this article are numbered consecutively after the tables in the preceding article.

pearing in the first column of Table XIII is used for Company "H."

The consolidated statement, reflected in the last column of Table XIV, results from adding together similar items on the statements of all companies after elimination of inter-company transactions. Thus the name of the item, for instance, interest, determines its location in the consolidated statement rather than priority of claim against revenue. Heterogeneous items, therefore, are consolidated and the resulting statement tends to be misleading. The consolidated income statement prepared from the last column in Table XIV shows that all interest is earned 2.21 times in contrast with 3.2 times in the operating companies and 3.55 times in the holding company. The apparent inconsistency is the result, as suggested above, of consolidation of heterogeneous items. Since so much emphasis is placed on the elusive "times interest earned" measure in connection with financing it is to be expected that the consolidated income statement as shown above will not ordinarily be very popular for that purpose, although it is used to a limited extent in annual reports. If the income statement of the holding company proper were used (column 3, Table XIV), "times earned" would be increased to 3.55. But use of the holding company statement is subject to the dual objections of showing small "gross" and of placing undue emphasis upon the legal distinction between the holding company and the holding company system as a unit.

Where the holding company owns all outstanding securities, both bonds and stock of its subsidiaries, the group of companies are in effect, although not legally, a unit; hence, operating expenses, maintenance, taxes, and retirements may properly be deducted from total gross revenue of all companies to ascertain the amount available for interest and dividends on holding company securities. This statement should not be confused with the erroneous form used in Table XV which places all interest charges in a position of priority over preferred dividends and minority inter-

TABLE XIII. INCOME STATEMENT OF HYPOTHETICAL COMPANY "H" PROPER PREPARED IN THREE DIFFERENT WAYS

	Reflecting Income Accrued Disregarding Whether Received or Not	Reflecting Income Actually Received	Reflecting Income Both Received and Accrued
Income actually received as dividends from subsidiaries	.....	$80,000	$80,000
Income accrued but not received	.....	.....	80,000
Total income received and accrued	$160,000	.....	$160,000
Interest on collateral trust bonds (6% of $750,000)	45,000	45,000	45,000
Times earned	3.55	1.77	3.55
Net income	$115,000	$35,000	$115,000
Dividends on preferred stock (7% of $250,000)	$17,500	$17,500	$17,500
Times earned	6.56	2.00	6.56
Balance for common stock	$97,500	$17,500	$97,500
Return on common stock—			
On par ($1,000,000)	9.75%	1.75%	9.75%
On original cost ($500,000)	19.50%	3.50%	19.50%

TABLE XIV. CONDENSED CONSOLIDATED WORK SHEET OF INCOME STATEMENTS OF HYPOTHETICAL COMPANY "H" AND SUBSIDIARY COMPANIES.

	Company A	Company B	Company H	Inter-Company Elimina-tions	Consoli-dated
Gross revenue	$450,000	$450,000	$160,000	$160,000*	$900,000
Operating expenses, taxes and retirements	290,000	290,000	.....	.....	580,000
Gross income	$160,000	$160,000	$160,000	$160,000*	$320,000
Interest on bonds	50,000	50,000	45,000	.....	145,000
Times earned	3.2	3.2	3.55	.....	2.21
Net income	$110,000	$110,000	$115,000	$160,000*	$175,000
Dividends on preferred stock	30,000	30,000	17,500	.....	77,500
Times earned	3.67	3.67	6.56	.....	2.26
Balance for common stock	$80,000	$80,000	$97,500	$160,000*	$97,500
Return on common stock—					
On par	16%	16%	9.75%	.....	9.75%
On cost	16	16	19.50	.....	19.50

* Deduct. This item represents the balance for common stock of subsidiaries accrued to holding company and therefore these inter-company items are eliminated from the consolidated income statement.

est in common stock of subsidiaries, which in effect may be junior to interest-bearing obligations of the holding company.

For purposes of financing, a modified form of the consolidated income statement has been developed. Table XV shows how the statement might have been prepared in connection with the sale of $750,000 6% collateral trust bonds of the holding company (assuming that the bonds had been sold to the public).

The modified consolidated income statement in Table XV shows the 6% collateral trust bonds in much better light than either the consolidated income statement or the income statement of the holding company itself. This is because all claims against gross income which are in effect prior to the 6% collateral trust bonds have not been shown; namely, dividend requirements on the preferred stock of subsidiaries. Although the form used in Table XV is used frequently in financing, it is to be condemned even more than the complete consolidated income statement. This form is a misstatement of facts because of the failure to recognize that unless dividends are paid on preferred stock of subsidiaries, dividends ordinarily cannot be paid on common stock, and, therefore, the holding company does not have income available for interest on its own bonds.

For purposes of simplicity, management and engineering fees, salaries, and other fees frequently charged subsidiary companies by holding companies have been ignored. Although such charges may be legitimate if made as compensation for services actually rendered, they also may be convenient devices for "lifting" earnings to the holding company without sharing with minority common stockholders and with preferred stockholders, in addition to increasing expense for rate-making purposes. In a recent case of holding company financing, management fees and interest from temporary loans to subsidiaries alone were approximately equal to the entire interest requirements of the holding company, thus improving materially the po-

sition of the bonds being sold provided such charges would continue.

A statement which reflects the type of information that is desired in most cases is presented in Table XVI.

These few illustrations taken from an extremely simple hypothetical case show how varied are the forms in which income statements of holding company systems are presented. If earnings are computed before depreciation and federal taxes, still other variations in results are possible. The emphasis, previously referred to, which is put on "times interest earned" in present day financial prospectuses is no doubt responsible to some extent for the fact that some holding companies obtain their capital without adequate compensation for risk; whereas others which are more conserva-

TABLE XV. CONSOLIDATED INCOME STATEMENT (INCOMPLETE) OF HYPOTHETICAL COMPANY "H" AND SUBSIDIARY COMPANIES.

Gross revenue	$900,000
Operating expenses, taxes, and retirements	580,000
Gross income	$320,000
Interest on bonds of subsidiary companies	100,000
Available for interest on this issue of 6% collateral trust bonds	$220,000
Annual interest requirements on $750,000 6% collateral trust bonds	45,000
Times interest earned	4.88

tive in the presentation of their earnings may be penalized by way of an excessive cost of capital. The fact that the balance for common stock is the same in several of these statements should be noted, while differences appear in the amounts available for interest and preferred dividends.

In recent months a few prospectuses have appeared which have faced the situation squarely. They have stated the amount available for all charges ($320,000 in Table XVI) and deducted therefrom all charges prior to and including the issue being offered ($160,000 plus $45,000 in Table XVI, a total of

TABLE XVI. CONSOLIDATED INCOME STATEMENT OF HYPOTHETICAL COMPANY "H" AND SUBSIDIARY COMPANIES PREPARED TO SHOW PRIORITY OF CLAIMS AGAINST REVENUE.

Gross revenue	$900,000
Operating expenses, taxes, and retirements	580,000
Gross income	$320,000
Interest on bonds and dividends on preferred stock of subsidiary companies	160,000
Accruing to Company "H" (of which $100,000 was received as cash dividends on common stock owned)	$160,000
Annual interest requirements on $750,000 6% collateral trust bonds	45,000
Times interest earned	3.56
Net income	$115,000
Dividends on $250,000 7% preferred	17,500
Times interest earned	6.57
Balance for common stock (of which $60,000 represent reinvestment in subsidiary companies)	$ 97,500

$205,000) to ascertain the times total charges have been earned (1.56 times).

This development should be recognized and encouraged as an endeavor on the part of investment bankers properly to set forth the facts. As is generally the case, pioneers in such movements, no doubt, will be penalized somewhat in their efforts to sell their securities because the investing public (and unfortunately too many investment bankers) are not schooled in the technique of holding company statement construction and interpretation. It is hoped that investors may be educated to differentiate between correctly and incorrectly prepared income statements so that capital obtained by holding companies may be more accurately compensated in accordance with risk involved.

A THEORY OF TELEPHONE RATES

By BARCLAY J. SICKLER

THE behavior of costs in the telephone industry has been observed to be materially different from that obtaining in other public service industries. The necessity of increasing possible connections faster than the rate at which new subscribers are added and sooner or later dividing the area served into exchanges with the added costs therein involved constitutes the chief technical basis for such a conclusion. Moreover, it has been observed that, in general, as a service area becomes larger, the cost of telephone service is higher and presumably the cost of producing that service is higher. Certain other aspects of cost behavior in this industry are, however, more generally overlooked. The telephone industry in many respects exhibits the same tendency toward decreasing costs found in other public service industries. In fact, it has not been demonstrated that the tendency toward increasing costs outweighs the tendency toward decreasing costs. However, it is generally found that most costs, both those incurred on account of property and plant and those incurred in operation are higher when the community served is larger. In addition, the standards of service demanded and maintained in the larger urban communities are normally higher, and this factor also tends to place the entire cost on a higher level.

One other aspect of the cost of telephone service that is very generally overlooked is that, as more connections are made, the value of the company's readiness-to-serve increases. As a small exchange increases in size, this increase in value is proportionately large, but when a larger exchange grows, the relative increase in value becomes very insignificant. We have thus in varying degrees unavoidably increasing utility of the service provided for previous patrons.

Ultimately, the rise in cost resulting from a larger area covered or a larger number of subscribers will bring about a condition where increased cost will have caught up with or passed the utility of certain classes or particular units of service rendered and the question of how to allocate costs and make rates will come forward as a serious problem. The following discussion of the more theoretical aspects of telephone rate-making views the problem of pricing telephone service in the light of the peculiar behavior of costs in this important public service industry.

Professor Taussig pointed out in 1891, that the differential prices charged for transportation services are a result of the fact that such services are produced under conditions of joint cost,[1] and it has since been perceived that the production of other utility services is carried on under very similar conditions. Their pricing has in many instances been recognized, more or less consciously, to be a phase of the pricing of joint products. Although this view has not ordinarily been expressed in terms of the theory of joint costs as found in economics texts, the recognition that public utility rates are a result of the existence of common costs is fairly wide-spread. Evidence as to how commonly this view

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1 "Contribution to the Theory of Railway Rates," 5 *Quarterly Journal of Economics*, pp. 438–465 (1891).

is held is seen in the frequent use of the following argument in favor of differential pricing. It is often said that a price to new users of a service which exceeds by any sum the costs added by the giving of that service is beneficial to the other users, even if the price is much less than these others are paying. The very use of this argument implies some recognition of the existence of joint costs, for such a statement can only be true when a portion of the cost is common to a number of different units, and hence does not vary with variations in the number of units actually produced. If costs increased exactly proportionately to increased production, a lower price to get additional users would not be justified.

That telephone service is also produced under conditions of joint costs has been rather hesitatingly recognized, as has been the fact that the pricing of telephone service is a result of these conditions. However, the writer has been unable to discover any clear statement of the nature of the joint costs incurred in the production of telephone service. Since an understanding of the pricing policy followed must depend upon a recognition of the nature of these costs, most explanations of the manner of fixing rates for telephone service have been unsatisfactory. Although the value-of-the-service theory of rate-making has been more warmly espoused by the operators of the telephone utility than by those of any other utilities, there has been no clear justification of this theory on purely economic grounds.

Joint Costs in the Telephone Industry

Before the nature of the costs of providing telephone service can be explained, the peculiarities of the product of the telephone utility must be considered. The telephone utility is not engaged in merely providing connections to the central office, but engages to furnish connection between customers as well. It should be obvious that this is true, for the mere connection to the central office could be of no value to anyone, unless he was thereby connected with someone to whom he wished to speak. What the telephone utility is actually selling to each subscriber is connection with everyone to whom that subscriber might wish to talk. It follows that the *total costs* of serving that subscriber are not merely the costs of connection to the central office, but constitute the entire expense incident to providing the complete connection. Included in the cost of giving him service are not only the operating expenses incurred and the costs of providing and maintaining the wire, poles, instruments, central office equipment, et cetera, necessary to connect him to the central office, but also the costs involved in furnishing the equipment necessary to connect to the same central office all of the persons to whom he wishes to speak.

Ordinarily, however, one customer alone need not bear all of these costs. Other people probably wish to have connection with these same persons, and if our original subscriber is not using the connections all the time, these others may secure the desired connection with no increase in cost save in operating expenses. This one item of cost becomes common to several users, the responsibility for it ceasing then to rest solely on the one subscriber. Thus, the expenses of providing interconnection for one subscriber become to a considerable degree common or joint costs with many other subscribers. Although it may be impossible to give a subscriber the service he desires without providing almost the entire plant, he alone need not bear all of the costs involved. Other subscribers also wish to use part of the plant

he needs, and are willing to pay for this privilege. The possibility of serving these others may be viewed as a by-product of serving him.

Inasmuch as each subscriber, with a few exceptions, will wish to have connection with a different set of persons than any other user, the service of each user, strictly speaking, is a different product from that of every other subscriber. The telephone company is engaged in producing almost as many different products as it has subscribers. This statement may be tested by determining whether the service rendered any subscriber may be substituted by another in place of his own. Since scarcely any two telephone users talk to the same set of other subscribers, and certainly do not do so under the same conditions, it appears that this could not be done. As the services are not interchangeable, they must be in some respect different. Thus, we may properly speak of the costs of producing telephone service as true joint costs.

This problem of joint costs also arises in the telephone industry in relation to the quality of the service given. The fact that interconnection is the product means that every subscriber is almost as much concerned with the grade of service rendered to any person with whom he wishes to speak as he is with the grade which he receives. Clear speech transmission over his own line does him no good when the person to whom he is talking has poor transmission. The grade of service demanded by the most exacting user thus must be partially applied to the entire system. If this user paid the full costs of his service, he would pay all the expense incident to providing over the whole system the extra grade of service he alone demands. Subscribers who evaluate this service at less than its cost, and thus do not demand it, are not primarily responsible for the incurrence of the expense of its provision. They are only responsible for the cost of the grade of service which they want.

However, it is not necessary that the subscriber responsible for the higher grades actually pay all these costs. Although other subscribers are willing to pay only the total cost of a lower grade, and hence are said to demand this lower grade, they value the better service at some amount higher than they do the poorer. Hence, they are willing to pay something for the better service and those who demand it need not pay its full costs. The costs of providing the higher grades of service are thus seen to be joint costs. They are necessary to the production of one service, and unavoidably and without extra cost enhance the quality of another service, thus becoming common to the two. For this increase in quality other consumers will pay something, the cost thus becoming joint to all the services. This aspect of the condition of joint cost means that not only are the investment and maintenance costs joint to all, but a considerable part of the operating costs as well. The actual operating costs involved in completing a call are joint not only to the two parties to the call, but also in varying degrees are joint to all in so far as the grade of service is in excess of that desired by the parties talking. The provision of this extra quality to the parties to this call is a by-product of furnishing it to those who demand it.

The Effect of Joint Costs on Competitive Price

The nature of the joint costs involved in providing telephone service having been considered, the next thing to be discussed is the effect of these costs on

the rate charged. A consideration of the way in which joint costs affect competitive price will be helpful in determining what their effect should be on telephone rates. Prices in general under perfect competition are set at the point where the amount supplied and the amount demanded are equal. In the case of freely reproducible goods where all the costs vary proportionately to the amount of each good produced, the supply and demand for each product will only be equated at a price which equals the total cost of production of each. In the opposite case, where all the costs are common to several different products, the only price for the joint products which will equate the supply and the demand for each is that which equals their respective marginal utilities, and does not produce a total revenue in excess of the total cost. All the joint costs must be incurred if any one of the products is supplied; consequently, so long as the capacity of the joint agents of production is not exceeded, these costs do not vary with the amount of any one product which is supplied. If any one of the products is demanded, any price for the by-products is better than none at all, and as much as possible will be charged for each. The amount that it is possible to charge depends upon the supply of each product, which in turn depends upon the supply of the other products, for the production of one involves the production of all. If one product is priced at less than the value of its marginal unit, the demand for it will exceed the supply, and the competition of buyers will either force price up to its marginal value, or cause an increase in the supply until the subjective value of the last unit does equal the price. This increased supply of one kind of service will result in an increase in the supply of all the other products, and a consequent fall in their marginal values. If this brings the total return below the total cost, the supply of all will fall off, and their prices will rise as their marginal values rise. On the other hand, if one of the products is priced higher than its marginal value, the supply will exceed the demand, and the competition of sellers will force the price down. The distribution of the common cost of joint products on any other basis than that of their relative values will thus bring reactions which will cause the prices to return to the point where they represent the relative values of the products, for only at this price is the supply of each equal to the demand for it.

In the case of most joint products not all of the costs are common, a considerable part of the costs of each product being separate. When this condition exists, the price of each product must be at least equal to its separate or added cost. If it is not, its production will cease and this separate cost will be saved. Its price may exceed the separate cost by any amount up to the total joint cost, depending on its relative value.

The Necessity of Following the Competitive Price

The services of public utilities are supplied under conditions of regulated monopoly, but, in so far as these services are produced under conditions of joint costs, socially wasteful production results unless they are priced in the same manner as are such goods and services when produced competitively. That this is true with regard to the total price charged for public utility services is apparent. Almost everyone will agree that public utility rates in excess of or less than the full cost of production, including a fair rate of return, are socially undesirable. It is also necessary that the contributions to this total price made

by different services produced under conditions of common costs be determined on the same basis as under competition if wasteful production is to be avoided. If some of the products are priced below their marginal values, some others must be priced in excess of their marginal values, or the total cost will exceed the total revenues. Some units of those products priced higher than their marginal values will not be sold, resulting in waste and a loss of revenue which will throw heavier burdens on consumers of the other products. This may be expressed by saying that part of the capacity of the joint agents of production will not be used, thus resulting in less utility from the productive facilities available without a corresponding decrease in their cost. On the other hand, the demand for the products priced at less than their marginal value will exceed the supply. If the business is a public utility, it must serve all who apply if they are willing to pay the price fixed. Supplying the excess demand for the under-priced product will augment the supply of all of the products, and this increase must either be wasted or the price reduced to the smaller marginal value of the larger supply. The total price which can be obtained will then be less than the total cost, for under our assumption the total of the higher prices just equaled cost. Thus, pricing joint products on any other basis than that of their relative value will result either in a waste of some of the services produced, or in production where the satisfaction received from the product is less than the cost of obtaining it.

Considering the usual case where part of the costs are common and part vary proportionately to the amount produced, those costs that vary proportionately with the output of each product must be met by the price of each, while those costs that are common to several products must be apportioned on the basis of their relative marginal values if wasteful production is to be avoided. When this is not done, whether rates are set above or below this competitive price, goods are produced which yield a smaller benefit than if the service were priced competitively.

To apply this argument specifically to the telephone industry, let us take a telephone exchange which has been built up under economical management by the use of correct pricing as this has been explained, and consider the effects of charging rates different from these correct prices. Assume that rates are changed so as to charge residence subscribers in excess of, and business subscribers below, the marginal value of the service now supplied. Raising the rates on residence service to a sum in excess of the marginal value would cause some of those now using the service to drop out. If the supplying of as many connections as existed before is to be undertaken, this will involve a waste of some of the facilities provided. The connections will still exist, but will not be used by those patrons who are in a position to get the greatest good from them, those whom they connect to the central office. What will happen, however, is that some of the residence subscribers will have their telephones taken out, and these connections will no longer be available to any one. This will decrease the value of a large number of the remaining telephones. The total value received from the telephones dropped will be lost, including both that obtained by their possessors and by other subscribers who used them. Under the assumption of economic management, unless subscribers would have evaluated the benefit from the telephone service lost at a sum at least equal to the ex-

pense which had been incurred in its provision, and which will now be saved, it would not have been supplied. So far the benefit lost to the community is just equal to the cost saved. But in addition to this benefit the community will lose the service which the subscribers who were dropped received from using the equipment of the remaining subscribers. The entire cost of this equipment continues, but part of the want-satisfaction which it yielded is lost. The equipment necessary is used less intensively, giving less service without a proportional decrease in cost.

The effect of the other change, that of pricing business service below its marginal value, would be an increase in the number of business stations. This will involve an increased supply of all the other services rendered, in the sense that an increase in possible connections will be provided. This increased number of possible connections cannot be sold to the people wanting them at a total price high enough to equal the added cost, for according to the assumption this exchange has been managed economically. If this increase in possible connections could have been sold at a price equal to its added cost, the management would have extended the service earlier. Patently this extended service is not sufficiently valuable to pay its cost, the provision being forced by the pricing of business service below its marginal value. The telephone utility must serve all who apply and are willing to pay the quoted rate, and by this pricing policy may be forced to provide service which the telephone users do not evaluate as highly as its cost. Pricing on a different basis than value of the service, so far as the products are joint, then brings a waste of the facilities of production, whether the products are priced above or below their marginal values to the customers of the utility.

Summary of the Theory of Telephone Rates

The general principles which should govern the fixing of telephone rates may be summarized as follows. The total of the rates charged must be high enough to yield sufficient revenue to meet the total costs, but should not be in excess of this amount. The rates for the particular services must cover at least the added costs which the service occasions, and should contribute as much to the joint costs as the demand for the service will permit. This means that each product should carry only as much of the joint cost as will permit the whole amount supplied to be sold, which amount will be that produced at the point where the total revenues yielded by all the products equals the total cost. Conversely, it should not carry a lesser portion than this, for in that case an amount greater than the supply would be demanded. If the capacity of the plant is fully utilized and an excessive return is not being earned, then rates for the particular services have been correctly made. The only way in which this result can be obtained is by setting rates at the marginal utility of the supply of each product, when the total production is such that the sum of the marginal utilities of all the products just equals the total cost.

The argument which has been set forth may be summarized in different terms. Although a subscriber may not be willing to pay the full costs added by connecting him to the central office, it is still desirable that he be given service, if he adds enough value to the service of other subscribers to make them willing to pay at least the portion of the added cost which he will not pay. The cost of a particular service may equi-

tably be collected from those who benefit by the giving of that service in the proportion in which the benefits are received. In this connection it should be remembered that the benefit received by other subscribers from a particular telephone is a result not only of being able to call that telephone, but also arises from the receipt of calls from it. That is, a call which terminates with a subscriber may have as much value to him as one which he originates.

We frequently hear that the justification for using rates based on the relative value of the service is the remarkable development of telephone service that this practice has brought about, and there is considerable truth in this argument. Since the value of telephone service increases with the number of subscribers up to a certain point, to have a large development of the service is desirable. Both from the standpoint of society as well as of the individual telephone users, it is economically beneficial that telephone service be extended to the point where a utility, that is evaluated at a sum at least as great as the amount which it costs to supply that telephone, is received both by the possessor of the last telephone added and by those who wish to call him or be called by him. A policy which tends to bring this about must also be economically desirable.

Application of the Theory

The remainder of this article will consider the question of how to charge each telephone user his full added expense and still distribute the common costs on the basis of the value of the service. Before this can be done it will be necessary to consider just what is included in the added cost of serving a subscriber. If telephone systems are considered in the same light as transportation systems, as units which must be provided to give the community the required communication service, it might be said that a telephone in every home, store, office, or factory which an appreciable number of persons might want to call would be necessary to meet the needs of the community as a whole. At any rate, the great majority of the telephones now installed would have to be maintained to give the subscribers as a whole the service which they desire, whether the possessors of these telephones want them or not. If this view of the telephone utility be accepted, then it appears that the only added "out-of-pocket" cost of serving the possessor of any one telephone would be the cost of connecting this subscriber to those who would not otherwise wish to call or be called by him.

The Readiness-to-Serve Rate

Three major factors are frequently cited with which the costs of providing public services vary. A classification of costs on the basis of these variables may be made as follows: (1) those costs dependent upon the mere provision of the plant in readiness to serve; (2) those dependent on the giving of service to the customers, but independent of the amount given; (3) those dependent on the amount of service given.

In the telephone industry the first class of costs may be divided into two parts: (a) those that depend upon the number of customers, and (b) those that depend on the busy-hour load. The first division includes chiefly the costs of providing the subscriber's instrument, the equipment connecting him to the central office, and part of the central office equipment. The second division includes chiefly the costs of furnishing and maintaining trunking equipment.

The second class, customer costs,

depends upon the number of subscribers. It consists largely of expenses of collection and record-keeping. The third class of costs depends upon the number of calls made, and includes chiefly operators' wages and other central office expenses.

Two- or three-part rates are possible in the telephone industry on much the same basis as they have been developed in the electric industry. The result of such rates is to charge each customer in accordance with the amount of expense caused by each of the three factors which arise as a result of serving him. Such a method of charging could be made into a two-part rate, consisting of a service charge including the costs dependent upon the peak load and upon the number of customers and a small charge for each call. This rate would be similar to the existing measured-service rate, save that no calls would be included in the service charge, and the charge for each call would be lower. There would seem to be no more difficulties involved in the administration of such a rate than in the regular measured rate.

By the use of this rate the costs could be charged in accordance with the factors producing them, thereby insuring that no one is charged for costs incurred for the benefit of some one else. By having each subscriber pay for the costs according to the manner in which he occasions them, economic waste is prevented also. If he may cause costs to arise without immediately being charged for them, he is more likely to be reckless about causing them than when his charge directly reflects the increased cost resulting from his actions.

This system of charging may be regarded as a method of preventing the added costs of serving a subscriber from being allocated on the basis of value of the service as well as the joint costs. The last two classes of costs, customer and output costs, are to a considerable extent, although not wholly, added costs of serving a subscriber. If any one subscriber were not served, the greater portion of these costs chargeable to him would cease. They should thus be charged to each subscriber on the basis of the actual expense. The fixed charges which do not vary with the amount of service given are almost entirely in the first class, readiness-to-serve costs, and should therefore be allocated on the basis of the relative value of the service. Charging on the basis suggested would make possible considerably greater accuracy in doing this than under existing rates.

Aside from reducing arbitrary discrimination, the advantages to the telephone utility and to the customers from such a system of charging would arise from the greater development of service which would result, not extensively but intensively. If customers paid the larger portion of their costs in one lump sum, and added calls were possible for one or two cents apiece, the incentive to make more calls would be great. The more calls made, the less would be the average cost. Customers would have a substantial overhead cost and they would derive advantage from using it as efficiently as possible. This would be particularly true where machine switching is used. Those costs directly dependent upon the number of calls are much reduced under this type of switching, a greater portion of the costs being fixed in character. A more intensive use of this fixed equipment is obviously desirable from the point of view of society, and up to a certain point would result in more value for the telephone user and more revenue for the telephone company.

The desirability of a more intensive use of the existing facilities cannot be

doubted. One of the most serious charges against measured service has been that it unduly restricts use of the service. The principal reason why it has done this to an undesirable extent is because it has not taken the form of the rate proposed. Instead of charging for each call only the amount of expense caused by that call, a larger amount has been charged. Thus the restriction in calls has been undesirable, for a larger sum and, consequently, a larger subjective value is lost by each call not made than is saved in expense. Under the rate proposed the charge per call would just cover the cost of that call, and additional calls would be made until the satisfaction received was just equal to the cost of providing it. Society would gain from the remaining restriction on calls because additional calls would yield less satisfaction than they would cost, and no material disadvantage to the telephone company would exist because no gain over costs would result from additional calls.

Where the variation in the number of calls is slight, this type of rate would be almost the same as the flat rate. With a smaller charge per call the cost of measuring the service might become more burdensome in many classes of service than the disutility arising from the inequity of the flat rate. If this is true, the flat rate is the desirable one for this service. Where there is but little variation in use between subscribers, the flat rate is not inequitable, and is cheaper. Measured service is desirable only where the added cost and inconvenience involve less disutility than does the discrimination of the flat rate.

Two major objections will probably be raised to such a proposal as this. The one most likely to be raised by telephone men will be that a large amount of customer ill-will would be aroused. This same objection was raised by the electric service industries to the proposal to charge a scientific rate for electricity, and is now being raised by the gas industry. The electric utility found that after a period of customer-education the expected ill-will did not materialize. The same thing may be expected both in the gas and in the telephone industries were they to carry on an educational campaign such as was carried on by the electric utilities. Probably it would be necessary to provide an optional rate for a considerable period, but if the system has merit the majority of the customers would eventually support it. As a method of "sugar-coating" the pill, some calls might be included in the service charge. If no more calls were allowed without extra charge than the great majority of subscribers are almost sure to make, no very undesirable results would follow. As many calls should be included as the majority of the subscribers use, in order to make the average cost of the number of calls included as low as possible. In this way the greatest benefit would be obtained from the "sugar-coating" process.

The second argument likely to be raised is that the price to small users would increase. There is no reason why this should occur. Rates would still be set on the basis of value of the service, and if the value remained the same to each class, all users would pay the same amount as now, the difference being that it would be paid in the same manner as the costs are incurred. That is, the greater portion would be paid regardless of the amount of service given. However, the increased use of all telephones would particularly benefit business users, and the share of the common costs which business stations would be willing to carry would probably rise. This would enable a lower rate to small users, and would probably result in a more exten-

sive development among such users than now exists.

Where rates containing a service charge which did not include any calls have been proposed in the past, they have usually involved an increase in residence rates and a decrease in business rates. However, this is attributable to the methods of cost allocation used. The designers of these rates have been burdened by the idea that costs could be allocated on some other basis than value of the service. Had the principle of value-of-the-service been followed it is very unlikely that these readiness-to-serve rates would have increased the price to small users.

Off-Peak Rates

Another advantage of such a system of rates would be the opportunities for developing off-peak use of the telephone system, that is, building up a greater use in the less busy hours. Differential rates for the development of off-peak use have been employed for a long time in electric utilities and in telephone toll service, but in the case of local service the telephone industry may well take a lesson in how to utilize plant capacity better. The importance of the peak load is much greater where a service such as interconnection or electricity is supplied than where a commodity is produced. A commodity can be produced at a continuous load and stored during times of little business in readiness for the rush hours. A service, however, must be produced as it is demanded, and sufficient equipment must be supplied to care for the peak load. Where this equipment can be used by others in off-peak hours, it is desirable to encourage such use by differential rates. The failure of the telephone company to develop such rates for local service undoubtedly results largely from the fact that much of its fixed equipment cannot be used by different customers. Each customer must have sub-station equipment, lines, multiple, and so forth to care for his full load, for only he can use this equipment. Off-peak rates on this class of equipment, unless a diminution in the total charge was made, would merely result in a better distribution of the calls, creating no increased utilization. Trunking equipment, however, and other portions of central office equipment, such as operators' places, can be used by different subscribers, and off-peak rates would secure a fuller utilization of such equipment. Since such equipment dependent on the peak load is a considerable item in the larger exchanges at least, it would appear both possible and profitable to grant lower rates in off-peak hours to secure its fuller utilization. Under automatic switching the amount of equipment dependent on the busy hour load is much increased, and both the possibility and the profitableness of off-peak rates would seem to be much greater.

This concession in rates should not take the form of a reduction in the charge per message, for the expenses per call are probably no greater in peak hours than in less busy hours. Probably they are smaller, for the operators are used much more intensively. The concession should be in the service charge. If the off-peak users would pay in their service charge the expense dependent upon the number of customers and contribute ever so little to expenses dependent on the peak load, it would be profitable to serve them. Probably such a differential would cause but a slight diminution in the busy hour load, but it would build up the off-peak hours considerably.

This service would probably be utilized only by those users having a number of telephones, for where but one telephone is installed the convenience

and emergency aspect of the service are too highly valued to permit a restriction of calls to certain hours. It is very likely that but few of the existing telephones would be changed to the restricted service. The gains would arise from the additional stations installed by those users who are at present getting along with as few telephones as possible, but who would install more were a cheaper though less convenient service inaugurated.

The practicability of using such a system offers little difficulty. These customers could be connected to the regular switchboard, the only necessary modification being to bring all their lines to a switch which could be opened during the busy hours.

The Factor of Holding Time

Occasionally it has been suggested that telephone rates include a charge for the length of time of the conversation,[2] and in the town of Everett, Washington, this system has been tried.[3] In this case, a device known as the telechronometer makes it possible to charge on the basis of the amount of time the telephone is used. The advantage claimed for this system is that it restricts use of the telephone so much that a cheaper rate becomes feasible. It is possible to have ten subscribers to a line, and less central office equipment is necessary. Although the total charge is reduced, there is some doubt whether the charge per unit of service obtained is smaller. Indeed one might expect that it would be greater, for with restricted use less effective utilization of overhead is possible.

Unless a company desires to restrict the service given, the time which a customer holds the equipment for each call would seem to be of little importance except during busy hours. The equipment is not fully used in off-peak hours, and the permission to talk as long as desired is an inducement to make calls in these hours, and is thus beneficial to the telephone company and to the other subscribers, as well as to those who make the calls.

The only disadvantage to the telephone company in the longer use of equipment which can be used only by the individual subscriber is that others calling the customer must be given the busy signal. This probably is not important enough to warrant restrictions on the length of time of using this class of equipment. The use of equipment which must be provided in sufficient quantity to care for the peak load is of little importance in off-peak hours, although certain minor increases in expenses may result, such as the requirement of a greater number of operator's cords. In busy hours, however, the holding time of this equipment is an important factor, and should be restricted. With this factor cared for, unless a restriction of service is desired to enable a lowering in the quality of the service and thus obtain a lower rate, any refinement in the rate to include the length of use seems unnecessary.

The Zone System

In addition to the effect on ratemaking of the two factors, time of use and duration of use, a third factor affecting the cost of serving a particular subscriber should be noted. This is the distance over which his calls must be transmitted. Obviously there is a difference between the cost of a call which can be completed on one switchboard

[2] See E. A. Laidlaw and W. H. Grimstead, "Telephone Service of Large Cities," 57 *Journal of the Institute of Electrical Engineers* (London), p. 158 (Supp., Oct., 1920).

[3] Coburn Allen, "Measuring Service in Units of Time," 92 *Telephony*, p. 14 (Apr. 23, 1927).

and of one which has to be trunked from one side of the exchange area to the other. Although the difference in cost need not be the controlling factor, it should certainly be recognized in the rate charged.

This problem of different costs for different distances has long been recognized. F. J. Dommerque, speaking before the American Institute of Electrical Engineers in 1902,[4] suggested a solution which has been adopted in a modified form in a few instances. He proposed that large exchange areas be divided into districts of considerable identity of interest, and that flat rates be charged in those zones with toll charges for calls outside of the zone. As the subscribers within each district would have a high degree of similarity of use, the flat rate would be equitable. By charging for calls outside of the zone, those who made the more distant calls would pay for them. By this method those responsible for the greater size of the exchange would pay the costs which resulted, and those who did not desire the wider communication would not have to pay for it.

So far as the writer has been able to discover, this method of charging was tried for the first time in Boston, in 1910, when D. C. and William B. Jackson recommended it after a special investigation.[5] This system was not then applied to the City of Boston, but to the surrounding metropolitan territory. Seven central offices in Boston proper were included in one zone, and each central office in the surrounding territory was made a separate zone. There was a flat rate for calls within each zone and to contiguous zones. Calls to other zones carried a toll of five cents for the first eight miles, and five cents additional for each added eight miles.

This system of charging was introduced in New York in 1915,[6] and is at present being used there. The City of New York is divided into 10 zones, the local calling area of each zone including the zone itself and those adjoining, five cents toll being charged for the next removed zones, and 10 cents for the the zones still farther away. The local area of the business center zone includes those zones next removed, as well as the contiguous zones. Both measured and flat-rate service are rendered in the local area, the area over which calls can be made without added tolls being greater for measured service than for unlimited service.

In 1925 a zone system of rates was put into use in Los Angeles and its environs.[7] The rate for the central zone includes service to all of the exchange area, while rates in the outlying zones include only service within the district and to the central zone, calls to other zones carrying a toll charge.

The same principles apply to the making of zone rates that cause long distance rates to be considered separately from local rates. Where there is not a high degree of uniformity in use of any service, such as ordinary toll service or long distance trunking, the charge for it should be assessed on those who use it, not on all as part of the service they are to receive whether they want it or not. A given rate area should only cover the territory generally called by the great majority of the subscribers. If calls outside this area requiring long distance trunk lines are not paid for by those who use them, but by all to whom

[4] American Institute of Electrical Engineers, *Proceedings*, 1902, p. 389.

[5] *Report* to Massachusetts Highway Commission on Telephone Rates, 1910, State Printers, Boston.

[6] *Report* of Public Service Commission of New York, Second District, 1915, Vol. I, p. 218.

[7] *Re Southern California Telephone Co.*, P. U. R. 1925 C, page 627.

they are available whether used or not, those who do use them will benefit at the expense of those who do not. If only a few are responsible for the provision of those distant connections, it is unfair to charge all for the greater cost of the greater distance. Users should not be forced to pay for the potential service of the larger area, unless they want it. If they are, the rates will be higher than is necessary to give the desired service to the majority of the subscribers, and will restrict telephone development among those who want only local communication.

The costs of such long distance trunking used only by a few subscribers are part of the added cost of serving these subscribers. This cost is incurred only for those using the more distant service, and is not joint to others. It would not be incurred if the subscribers who desire it were not served. It is thus a separate, added cost of serving these subscribers, and is not common to the others. According to the theory of telephone rates evolved, each subscriber should pay at least the costs added by giving him service. Consequently, the subscribers responsible for the distant service should pay its total cost, and none of it should be charged to those who do not use it.

In the administration of such a system it would be advisable to permit toll-free calls between adjacent zones, for considerable dissatisfaction would result if neighbors were required to pay tolls to talk together because they were separated by an arbitrary zone boundary. If the zones were properly located, it would probably be possible to have a large amount of flat rate service within the zones, thus saving the extra cost of measured service for these users. Considerable uniformity would probably exist within the zones, making the flat rates equitable.

As a class of business service would probably exist, the users of which would wish communication with the entire area, a city-wide service without tolls could be provided from the central business district as is done in the case of Los Angeles and to a certain extent in New York. This would, of course, be at a rate correspondingly higher than the restricted service. This city-wide service would not necessarily be restricted to any one zone. As users who would wish the city-wide service would undoubtedly be scattered all over the exchange area, such a restriction would not permit each user to get the service he desires. Two general classes of service might be provided, say Class A and Class B. Class A service would include the entire exchange in its toll-free area, and would be charged accordingly. Class B users would be allowed to call in their zone only without toll, calls outside being extra.

As business men also wish to receive calls from the entire exchange area, the system followed in Los Angeles of including the central zone in the toll-free area of each zone may be followed, or some such service as has recently been inaugurated by the Chicago department stores could be provided. These department stores provide free connection between customers in the suburbs of Chicago and their store, when ordinarily a charge of five cents is collected. This is done by having a number in the suburban exchange which can be called to get direct communication with the store. This enables the store to have its service extended to a larger area, without increasing that of other subscribers who do not desire the larger area of communication.

This arrangement could also be used in connection with the system of two classes of service suggested above. Class A subscribers would not only be allowed to call anywhere in the area, but could

receive calls from the entire area without the caller paying a toll. The toll-free service of Class B subscribers would include their own zone and all Class A subscribers, this extra service being largely paid for by the Class A subscribers, of course. To enable operators to recognize calls to Class A subscribers they could be given a peculiar type of number.

Some such service as this might be inaugurated in connection with long distance service. A third class, say Class AA, might be provided for those who desire a large amount of long distance service. A readiness-to-serve charge for this service would be included in their initial rate and the actual long distance calls made would be charged at a low rate. In this way it would be possible for the large user of such service to secure a low average cost per call, and still give more revenue to the telephone company than it gets under the restricted use of this equipment now existing. These classes who only occasionally desire such long distance service could be charged a much higher sum for this occasional use than regular users would pay, although probably not higher than existing rates. If the equipment is to be held ready for their use whenever they happen to wish to use it, it is equitable that they should pay more per call than the subscribers who specifically pay for the holding in readiness to serve.

Although the proposed system of zone rates appears to be sound in theory, practical difficulties in recording the different kinds of toll calls exist. No economical machine for registering different kinds of calls has been developed, the best way to accomplish this being the expensive one of ticketing. In New York regular measured service is machine registered, toll calls being ticketed by hand. However, the development of a machine for recording different kinds of calls is being attempted for use in connection with machine switching.

Summary

Practically all rate problems may be reduced to the question of how to charge each service for the added costs which it occasions and still distribute overhead costs on the basis of relative value of the service. When this is done, the most economical use of the plant and the most desirable extension of service will have been achieved. Until this is accomplished, telephone companies will still have unused capacity of one sort or another which could be utilized to advantage, and opportunities for profitable rate differentiation will still be present. In the opinion of the writer the use of this guiding principle is fundamental in setting rates for any public utility service.

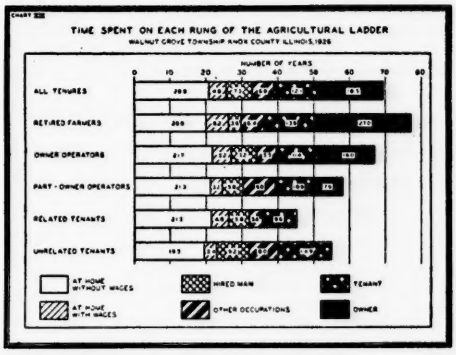
LAND TENURE IN WALNUT GROVE TOWNSHIP, KNOX COUNTY, ILLINOIS

By WILLIAM TEN HAKEN

THE previous installment of this article[1] contained a description of the general conditions of land tenure in Walnut Grove Township. In it were included analyses of the percentage of tenancy in the area, the nativity of the farmers, the size of the farms, and finally the stages through which the different tenure groups passed in their climb up the "agricultural ladder."

It is of interest not only to ascertain what percentage of the farmers in the various classes of tenure passed through the intermediate stages from farm boy to landowner, but also to determine the length of time spent in each. The length of the first stage, that of working on the home farm without wages, must necessarily be expressed in terms of the age at which this stage was terminated, because it is impossible arbitrarily to set an age at which a farm boy begins his work at home. In each case the average number of years spent in a stage is computed only for those who actually have been in it. For example, only 7 of the 32 related tenants worked in other occupations. The total number of years spent in other occupations by related tenants is divided by 7, and not by 32, to ascertain the average number of years which a member of this class spent in that stage.

For all tenures the average age at which farm boys ceased working at home without wages was slightly below 21, as Chart VIII shows. Retired farmers became wage-earners at the age of 20 years, while unrelated tenants did so a half year earlier. Moreover, it will be recalled that among those in these two classes a proportionately smaller number



passed through this wage-earning stage in the first instance. On the other hand, a larger proportion of farmers in the other three classes, all of whom commenced working for wages at the approximate age of 21½ years, passed through the wageless stage.

a. *Home Labor Stage.* The average duration of home labor is about 5 years. Retired farmers spent the most time on the average in this stage, whereas part-owner-operators worked the shortest time under this arrangement, and unrelated tenants stayed only a small fraction of a year longer.

b. *Hired Labor Stage.* The same phenomenon—a quicker rise on the part of retired farmers—appears in the hired man stage, in which an average of over 7 years was spent. The retired farmer group had the smallest percentage of its number working for hire away from home, and they also spent the least average time in this stage. On the other hand, the 81.5% of unrelated tenants

[1] See 4 *Journal of Land & Public Utility Economics* 13-24. Charts in this article are numbered consecutively after those appearing in the last issue.

who have been hired men served in that capacity for an average of more than 9 years. This merely emphasizes the very great importance of this step in the unrelated tenant's climb to land ownership.

c. *Non-agricultural Stage.* Six years were spent in non-agricultural work by members of all tenure groups but the period varies among them from 3½ years for related tenants to 8 and 9 years for unrelated tenants and part-owner-operators, respectively. Here again the same relationship is seen; a large percentage of part-owner-operators passed through the stage and spent a relatively longer period of time in it. The unrelated tenants, with the next to the highest percentage working in other occupations, stayed next to the longest average time in that stage.

d. *Tenancy Stage.* The average number of years spent in the tenant stage by the 131 farmers, who once were or still are tenants, is slightly over 12 years. Only 72 of these have completed their tenancy stages. If three successive generations of farm operators are represented by retired farmers, owner-operators and part-owner-operators, then it may be said that the period of tenancy is gradually decreasing. But when the present tenants are also considered, the related class with over 9½ years, and the unrelated with about 15 years already spent as tenants, an opposite conclusion is reached.

This comparison of the duration of tenancy is complicated by the fact that members of the owner group have completed their tenancies, whereas the present tenant farmers face an indeterminate number of years of continued tenancy. If we assume that as many tenants are now in their last year of tenancy as in their first year, the others ranging between these two extremes, a fair estimate would be that the present tenants had finished about half their period on this rung of the "ladder." With this assumption, each of the last mentioned figures will have to be doubled in order to make them comparable with the completed tenancy periods of the three owner groups. This results in a period of tenancy of about 20 years for those who rent their land from relatives, and about 30 years for those who rent from strangers.

But the assumption seems contrary to fact because it neglects the "permanent" or "chronic" tenant. Hence, the computation based thereon exaggerates the length of present-day tenancy periods as compared with those already completed. Among the present tenants are some "chronic" or "permanent" tenants, who probably never will rise to the status of owners. These are by their very nature excluded from the classes of former tenants—retired farmers, owner-operators, and part-owner-operators. To illustrate, one unrelated tenant has been renting the farm which he now operates for 31 years, and will probably never operate land of his own. But he has in the meantime purchased a 160-acre farm in an adjoining township which he is renting to two of his sons. Another has been continuously renting land for 33 years, others for 25, 24, 22, 21, 18 years. Many of these will probably retire directly from tenancy without having operated land of their own. The fact that some farmers have no desire ever to operate land of their own is frequently lost sight of by hostile critics of tenancy as a system of land tenure. Several tenants of this type in Walnut Grove Township are decidedly better off, from an economic standpoint, than some owner-operators who are burdened with heavy indebtedness. Constantly mounting taxes, increasing costs of building and repairs,

and even falling prices of farm products hold no such terror for the farmer who rents his land from another, as for an owner or part-owner who may be struggling to pay off the encumbrance on his farm. The tenant's obligations to the owner consist, for the most part, of delivering a share of the crops grown each year, be they good or poor, high or low-priced. These permanent tenants can not properly be placed in the same category with others who use tenancy simply as a step toward owner-operation.

The correlation between the percentage of each tenure group which has passed through the tenancy stage, and the average number of years spent in it, is negative. That is, the larger the percentage of a group which has passed through the stage of tenancy, the shorter is the average period of time spent by its members in that stage. A few figures will substantiate this fact. Only 80% of the retired farmers were tenants, but these remained as tenants for an average of about 14 years. About 94% of the owner-operators were tenants, but the average number of years of tenancy was less than 11½. And the part-owner-operators used tenancy as an upward step without a single exception, but each one spent less than 11 years in this status. Directly in contrast with this situation is that observed in the earlier stages of the "agricultural ladder." In these the correlation is positive, or the larger the percentage of a tenure group passing through a stage the longer the period of time spent in it. For example, the unrelated tenant class has by far the largest percentage of its number who have been hired men, and the average number of years spent as a hired man by each is also greater than in any one of the other tenure classes.

e. *Ownership Stage.* A compilation of the average number of years during which members of each group of the present 72 owners of land have held title serves no scientific purpose, except that it furnishes some basis for considering retired farmers, owner-operators, and part-owner-operators as three successive generations from the land ownership point of view. But the fact that retired farmers have owned their land 27 years, owner-operators, 16 years, and part-owner-operators, about 8 years shows the chronological sequence of these three classes of tenure, and the justification for treating them as successive generations of farmers.

The Retired Farmer

Investigators of farm tenure are prone to regard full, unencumbered ownership as the pinnacle of development, the topmost rung of the "agricultural ladder." This attitude has frequently resulted in neglect of the important functions sometimes performed by the retired owner. For that reason considerable attention has been given in this study to the relations of retired farmers to their successors in the active operation of their farm properties. These successors may be merely tenants, in which event the retired farmer is a landlord; or the successors may be encumbered owners, the retired farmer holding the mortgage. In either case there is a possibility that the retired farmer may have more or less close relations with his successor. This is the more probable when we consider the reluctance with which many farmers relinquish active operation of their land, a feeling which is well expressed in the phrase, "retreat from the farm." The privation and self-denial which often necessarily accompany the acquisition of a farm tend to cultivate in the owner an affection for his place that makes him hesitate to take the retreating steps. Once he has given up active operation

the question naturally arises: Does the retired landlord perform any worthwhile functions while still retaining title to his farm? Upon the answer to this neglected question depends to some extent the merit of the present system of land tenure in the United States, with its tendency toward increasing tenancy in certain sections, for land is rented largely from retired farmers in this country, as contrasted with the renting of land from a more or less permanent class of professional landowners in certain European countries.

In such a community as Walnut Grove Township, where most of the tenants are sons or sons-in-law of the owners of the land which they operate, it is only natural that the retired landlords should perform functions of considerable importance and value to their tenants. The advice and assistance, given by related landlords to members of their own families operating their farms, is naturally greater than that given by retired landlords who rent their land to non-relatives. But the character of the typical lease contract in this section causes almost every landlord within easy driving distance, whether related to his tenant or not, to take a keen interest in the farm operations. With two or three exceptions, all of the land rented in the township is on the share basis, with provision for the payment of cash rent for grass land. In many cases the tenant is not allowed to plow any grass land without the owner's consent.

Retired landlords are inclined to discount the part played by them in the farm operations of their tenants, especially if they are near relatives, but inquiry from others reveals that it is considerable. Of the 31 retired farmers interviewed 29 still own land, 10 of whom rent to strangers, 1 to a cousin, 3 to brothers or brothers-in-law, and 15 to sons or sons-in-law. According to their own statements, no function whatever is performed by 6 of the 10 who rent to non-relatives, 3 furnish advice and direction, and 1, supervision. The 3 who rent to brothers or brothers-in-law take no part whatever in the operation of their land, but the 1 who rents to a cousin gives advice and direction. Labor and supervision are furnished by 13 of the 15 who rent their land to sons or sons-in-law, while the other 2 give advice and direction.

The proximity of the residences of the retired farmers to their land is one of the reasons why a large degree of supervision and direction is possible on their part. Eight of them still live on the farm itself, 8 in Altona, 4 in adjoining townships, 2 in Galva, Henry County, which is only 9 miles distant, and 7 in Galesburg, the county seat, a distance of 16 miles from Altona.

Inquiry as to the location of the land still owned by 29 retired farmers checked this conclusion from a slightly different angle. They own a total of 45 farms, 26 (or 57.8%) of which are being rented to relatives. All of these farms are located in Walnut Grove Township, except 1 which is in an adjoining township. Of the 19 farms rented to non-relatives, 14 are in this township, 3 in other townships in Knox County, and 2 in other states. So far as this township is concerned, at least, absentee landlordism is so negligible as to create no difficult problems.

The considerable accumulation of land in a single township among retired farmers, evidenced by the foregoing figures, suggests another line of inquiry, namely, whether this stability was also present among them as tenants. Of the 25 who rented land before becoming owners, 13 rented the same farm for an average of about 12 years; 7 rented 2

farms each for an average stay on each farm of about 6½ years. Only 2 rented 3 farms, remaining 5 years on each, and 2 rented 4 separate farms, on each of which the stay was a little over 6 years. The only farmer who rented as many as 5 farms, nevertheless, remained an average of 4 years on each of them. Considering all retired farmers who once were tenants, we find that they remained in this stage an average of 14 years, and spent a little more than 6 years on each farm, showing a rather high degree of stability. Also 11 of the 25 purchased the last farm which they rented. Bearing on the aspect of stability is the question: At what age did these retired landlords first become tenants and later owners? The average age at which they started to rent and operate farms for themselves was found to be 23 years, while the average age of becoming landowners was 33.6 years.

The reasons given for retiring are extremely varied. Ill health of either the farmer or his wife leads the list of reasons with 10 instances, and giving sons a chance to start farming for themselves is second with 8. Some of the more unusual reasons given are: the burden of many land holdings, scarcity of hired help during the war, greater profitableness of renting than operating, and caring for aged parents in the city. A few retired from farming in order to engage in other occupations, such as the real estate business, hardware business, mail clerk, and garage business. But those who retired with the express purpose of engaging in another business do not properly belong in the class generally known as retired farmers. Since the age at which these few retired from agricultural activities is not the time of retirement from productive work, they can hardly be considered in arriving at the average age at which Knox County farmers actually retired. Therefore, for this one purpose, 6 of the total of 31 were omitted from consideration. Of the remaining 25 the average age at retirement was 53.9 years, while if the whole number be taken, it was 49.2 years. The present average age of the 25 is 64.4 years, and of the 31, 61.1 years. The former average age of retirement is fairly representative of the age at which farmers in this township cease active full-time work. Their continued interest in agriculture, however, is evidenced by the fact that all but 2 still own 1 or more farms. Two others had sold their farms during the boom period following the war, but both repossessed them because of the inability of the purchasers to continue making payments upon them. One farm each is owned by 17 of the retired landlords, 2 each by 9, and 3 each by 2, and 4 farms by 1. Several retired farmers stated that they were spending part or all of their time in one of the following occupations: insurance agent, shoe and harness repairer, manager of a farmers' elevator, painting contractor, bank president, mayor of Altona, and automobile salesman. The only occupation which 6 of them gave was helping their sons with the work on the farm.

The Owner-Operator

Having presented a few of the outstanding facts with regard to the retired farmers as a class, in addition to those brought out in the general discussions which preceded, it may be of interest also to note other facts concerning the preceding stages of land tenure. The frequent shifting of operators from farm to farm is considered one of the most undesirable features of tenancy in this country. Some light may be thrown on the extent to which this takes place by citing the number of farms rented before be-

coming an owner, together with the length of time spent on each.

All but 2 of the 32 owner-operators were tenants before becoming owners, 24 of whom rented but 1 farm from a relative, for an average of 11.2 years. All but 2 of these acquired the same farm at the completion of their tenancy. Two rented 2 farms each, also from relatives, for an average of 4 years on each farm, and 1 of these tenants became owner of the last farm rented. Three rented 2 farms each from non-relatives, for an average of 4.2 years per farm, while only 1 stayed on his last farm as an owner. The remaining 1 rented 4 farms from non-relatives, staying on each but 1 year and moving once more before he obtained a farm of his own. On the whole, the amount of shifting in this tenure class was very small, largely because 80% became owners of the farms which they last rented.

The average number of years spent by 30 owner-operators as tenants was 10.5, while the average number of years spent by them on each farm was 8.3. The average age at which land was first rented by owner-operators was 26 years, and the average age of acquiring ownership was 35.4 years. Their present age is 52.2 years.

The Part-Owner-Operator

As stated in another connection, all the part-owner-operators were tenants at one time. Seven of the 17 in this group rented but 1 farm and only 1 of these was obtained from a non-relative. The 6 who rented from relatives spent an average of 8.3 years as tenants; the 1 who rented from a stranger stayed 12 years as a tenant. All 6 of those who rented from relatives bought their rented farms; but the renter from a non-relative bought a different farm. Of the part-owner-operators who rented more than one farm, two groups are again distinguishable: (1) Those who rented from relatives; (2) Those who rented from strangers. Five related tenants rented 2 farms each for an average stay of 6.6 years on each farm. Moreover, 3 of them continued as owners of the last farm rented. Another rented his first farm from a stranger for 3 years, and his second from a relative for 5 years, becoming owner of this second farm. Another rented 3 farms from relatives for an average of 2 years on each, while 1 related tenant spent an average of 2.7 years on 4 different farms, becoming owner of the last one. One unrelated tenant, on the other hand, stayed an average of 5.7 years on each of 4 farms, while a second unrelated tenant spent a total of 9 years on 5 farms.

Shifting is prevalent in the part-owner-operator class to a much greater extent than in the owner-operator class, both because more frequent moves were made while tenants and because less than 65% acquired the farm which they last rented. The average number of years spent as tenants was 10.9, less than a half year more than among the owner-operators, while the time spent on each farm was 3 years less, or 5.3 years.

The average age at which the first land was rented by part-owner-operators was 25.9 years, while the age when the first land was owned was 36.5 years, slightly more than a year older than the owner-operators. The average age of part-owner-operators at present is 44.5 years, or about 8 years younger than owner-operators. This bears out the theory advanced earlier in this article that they belong to a younger generation which is just now in the process of transition from the tenant stage to that of owner-operation. They have, so to speak, one foot on the owner-operator rung of the "agricultural ladder," while

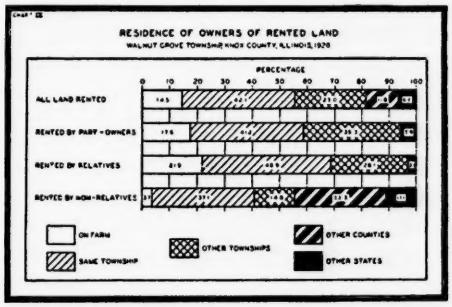
the other is still on the tenant rung. Whether most of the weight is on the upper or lower rung depends upon whether more acres are owned than rented. Tenancy of this type, where only a part of the farmer's economic unit of land is being rented, is obviously another step toward full owner-operation. It approximates the encumbered-owner-operation stage, since in each case the farmer's equity in the land which he operates is less than if he owned all of it, free from encumbrance. If he is prosperous, his equity will gradually approach 100% in both situations, and if he is not, it may decrease. The part-owner stage is more significant, however, because it almost invariably represents a step up, while the encumbered-owner status may be a step down from full ownership.

The Related Tenant

Although figures on shifting which are comparable to the above can not be obtained for the present tenants, because they have not yet completed this stage of their ascent of the "agricultural ladder," still some comparisons can be made. For instance, 22 of the 32 related tenants are still renting their first farm, and have already been on it for an average of 9.6 years. The 7 related tenants who are renting their second farms have already spent 5.3 years on each of them. One of the 3, who have rented from both relatives and non-relatives, is now in his eleventh year on his second farm after having rented his first farm for 2 years. The second, who is renting his third farm for the second year, spent an average of 2 years on each of the other 2. The third, though he rented 3 different farms during his first 11 years of tenancy, has now been on the fourth for 10 years.

Thus far the related tenants have been in the tenancy stage an average of 10.2 years and on each farm an average of 7.2 years. When these figures for the partial period of tenancy are compared with those of the completed period of the retired farmers, owners and part-owners, an increasing stability seems to be manifest among the present tenants. The average age at which the related tenants began renting land was 25.3 years, and their average age at present is 35.1 years, or about 9½ years younger than the part-owners.

Additional light is thrown upon the prevalence of absentee landlordism in this township by ascertaining the residences of the owners of all tenant-operated farms. Chart IX shows the percentage of the owners of rented land who



live on the farm, in the same township, in other townships, in other counties, and in other states, for each class of tenants. The residence of 22 of the 32 landlords here involved is in Walnut Grove Township, 7 of them on the farm itself. Nine others reside in other townships in the county, and the remaining 1 lives in Florida. None resides outside the county within the state.

The Unrelated Tenant

Any figures gathered on the number of farms rented, number of years on each farm, and number of years spent in the tenancy stage by the unrelated tenants require the same qualifications as for

related tenants, namely, that such figures pertain to an incompleted tenancy period. Although the percentage of those who have rented only 1 farm is much smaller than among the other tenure classes, still 8 out of the total of 27 have been on their first farms for an average of 8.4 years. Another 8 have rented their present farms for an average of 8.1 years and previously rented another for an average of 3.9 years. Seven have been renting their third farm for 8.4 years, and spent 4 years on each of the other 2. The other 4 are renting their fourth farm for an average of 1 year, while they were on each of the other 3 for an average of 2.6 years.

The time which unrelated tenants have been spending in their present status, an average of 11.6 years, already exceeds the longest completed tenancy period of the owner groups, while the time spent on each farm rented is less than in any other group, 5.1 years. The presence among the unrelated tenants of some who will probably be permanent tenants, and also a considerable number of transient tenants, partly explains these comparatively large and small averages, respectively.

Absentee landlordism as an argument against tenancy in a system of land tenure finds some support only in the case of unrelated tenants in this township, although even here more than 40% of the landlords of this class of tenants live in the same township, 1 of them on the farm itself. The 4 residents of other townships in Knox County represent 14.8%, while exactly one-third reside in other counties in Illinois. The 3 who live in other states reside in New York, California, and Florida.

The average age at which the unrelated tenants started their period of tenancy is 29.4 years, about 4 years older than either the class of owners or the related tenants began their tenancies. Several of the unrelated tenants had been engaged in other businesses for 10 years or more before taking up farming, but so had several of those in the other classes of tenure, which tends to raise the average in each class a year or two above what it would otherwise have been. The average present age of the unrelated tenants is 40.3 years, or 5 years above that of the related tenants, and only 4 years below that of the part-owner-operators. Again the presence of the probably permanent tenants tends to raise this age.

The Hired Man

Since no attempt was made to interview the hired men as a class on the farms of the township, most of the information regarding them was obtained from the farmers who hire them. Nine of the 91 hired men are married. Their status may be said to be in the process of change from that of an irresponsible single hired man to that of a tenant who has the usual responsibilities of the head of a family coupled with those of the operation of a farm. As a rule, much valuable experience in the conduct of farm operations is gained by married hired men, because the operators feel that they can safely leave many of the more important details of farm work to them. Their employers are unanimous in their testimony as to the greater dependability, as well as greater productivity, of married men. Another advantage of hiring a married man arises from the fact that in most cases on American farms the single hired man is considered a member of his employer's family during the period of his employment. A place in the farm home need not be provided for a hired man who is married.

The terms of employment are on the whole fairly favorable to the married hired man from the economic point of

view. He is usually hired on a twelve-months basis at cash wage rates slightly higher than the wages paid to single men. In addition, he is usually furnished with a house and out-buildings, including a garage, feed for a good-sized flock of hens, pork and beef, and the milk from at least one cow. Under such an arrangement, practically the only expenditures of a married hired man are for fuel, clothing, and the operation of his car.

The sources of the hired help found in the township are quite varied. About one out of every five is the son or brother of the operator, an additional 24% are from Walnut Grove Township, 15% from other townships in Knox County, 11% from other counties in Illinois, 9% from other states, and 4% from foreign countries. Where the others come from is not known.

It is only reasonable to expect a rather close correlation between the hiring of help and the size of farms. There is no hired man on any of the 10 farms of 80 acres, and only 2 of the 12 farmers who operate 81–120 acres hire additional help, while all except 5 of the 36 who operate farms in the 121–160 class do so. In the 161–200 acre class, every farm has hired help, but 1 of the 23 farmers who operate between 201 and 240 acres has no hired man, and 2 of the 15 who are in the 241—320 class have none. Both of the farmers who cultivate over 400 acres hire 2 men, as do several of the operators of the other larger-sized farms. This accounts for the discrepancy between the number of farmers who hire help, 80, and the number of hired men on their farms, 91. Of the total number of farms of all sizes (108) 28 are without hired men.

Summary

As was stated at the outset of this discussion, the purpose of this study was not to solve the problem which confronts a propertyless young agricultural worker of today who aspires to the ownership of a farm, but simply to collect additional facts from a selected area which might serve as a basis for further discussion of the problem. An attempt has been made to set forth the factual material in intelligible form, leaving the drawing of any conclusions largely to the individual reader. A brief summary, however, may be of assistance in arriving at such conclusions.

This study of Walnut Grove Township yields several facts at variance with certain generalizations frequently made with regard to tenure conditions in agricultural regions. In the first place, we have here an area that has a particularly high rate of tenancy and at the same time a relatively stable population. Study of landlord-tenant relationships reveals that absenteeism is no problem here, for the related landlords in particular and to some extent those who are not related to their tenants are found to exercise considerable supervision over the farm operations. This is greatly facilitated also by the fact that all except one of the landlords reside within the township or county.

Evidence to support the theory of the "agricultural ladder" is abundant. So far as this township is concerned the data gathered seem to show that the farmer moving up from the home labor stage, through hired labor and tenancy, to ownership and eventual retirement spends a longer time in each successive stage. The rapidity of a farmer's rise to ownership is affected by relationship to the landlord. The activities of retired farmers also appear to have an effect upon the "agricultural ladder." The retired farmers entered the tenancy and ownership stages at an earlier age than did those now in these stages and

on the whole spent fewer years on each subordinate rung of the "ladder" to ownership. As might be expected instability of tenure is more apparent among the part-owner-operators renting from strangers and the tenants unrelated to their landlords. The evidence also points to the great significance of the part-owner-operator stage in the climb to ownership, at least under existing conditions in Walnut Grove Township. This factor is doubtless connected with the distribution between related and unrelated tenants and the inclusion of probably permanent tenants mostly in the latter group.

However, only very tentative and carefully circumscribed conclusions can be drawn, because the separate stages in the climb have such different significance for the different tenure groups. Exhaustive studies of other areas are necessary to build up a foundation on which to rest general conclusions.

PUBLIC UTILITY FINANCING, 1919-1927

By PETER LEININGER

JUDGED by their demand for capital alone, the public utility industries have grown spectacularly in the nine years from 1919 through 1927. The total for the period reaches the sum of $11,964,638,328 which is 22.36% of total financing of every kind for the period and is 33.58% of all corporate financing.

The period was marked by an *annual* increase in volume of public utility financing, with the 1927 total approximately one-third greater than the 1926 total. Whatever may be the indications of a recession in volume in 1928, this eventuality gives added emphasis to this new annual "high" in 1927. The public utility industry in 1927 absorbed $2,986,504,178 compared with $1,974,451,346 in 1926 and $462,271,650 in 1919. This 1927 figure is $1,657,099,919 above the average volume of $1,329,404,259 for the nine years, or 224.65% of that average.

In simpler terms, this relation may be expressed as an index number in which the data for 1919 are taken as 100%. The 1927 index is then 647—a figure which is greater for a single year than the aggregate of public utility financing for the first four years of the period, 1919–1922, inclusive (Table I).

The 1927 volume-increase in public utility financing is a relative as well as an absolute increase. Not only did the grand total of public utility financing rise from year to year but also the proportion of utility financing to corporate and to total financing moved steadily upward at the expense of lower volume industrial demands. The proportion of government and corporate financing to total financing did not vary widely. A large amount of real estate financing

TABLE I. INDEX NUMBER OF VOLUME OF PUBLIC UTILITY FINANCING, 1919–1928*

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
By Months										
January	100	67	55	46	122	112	199	173	259	176
February	48	28	25	47	66	89	172	125	314	220
March	25	27	25	43	94	78	144	115	158	.....
April	5	38	25	50	64	112	69	182	165	.....
May	15	38	35	150	66	233	103	230	214	.....
June	26	20	9	96	92	122	118	181	130	.....
July	41	25	115	44	21	104	90	177	97	.....
August	20	11	33	22	40	62	93	58	92	.....
September	54	44	34	147	34	77	110	38	168	.....
October	24	33	33	77	59	112	92	123	261	.....
November	8	21	119	43	161	69	102	136	212	.....
December	20	63	53	54	135	111	153	114	433	.....
By Quarters										
1st Quarter	100	71	61	80	164	162	299	240	424	.....
2nd Quarter	27	56	41	172	129	271	168	344	295	.....
3rd Quarter	67	47	105	123	55	141	170	159	207	.....
4th Quarter	30	68	119	101	206	169	201	217	528	.....
By Years	100	107	145	212	246	330	373	427	647	.....

* Volume for January, 1919, First Quarter, 1919, and Year 1919, used as basis for computing index numbers for months, quarters, and years respectively. Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle*.

was the important factor in maintaining volume of "other corporate" financing. In 1927, public utilities accounted for 30.26% of the total, and 40.9% of the corporate total; compared with 26.57% and 37.26% respectively in 1926, and 10.79% and 16.87% respectively in 1919. These relations are not absolute, to be sure, because of the weight of the early years 1919–1921 and the 1927 "high" in the average. The year 1919 was a year of uncertainties and the three years, 1919–1921, a period of high interest rates which precluded any great expansion. Moreover, the 1927 volume may be attributed in part to the general price level, as well as to established confidence in the continued stability of the utility industry.

A significant fact, in this connection, is the proportion of new capital. In 1927 of the impressive total for public utilities, 69.5% was new capital. The preceding year 81.2% of the year's lesser total was for new capital, and in 1925 and 1924, it was 86.7% each. But even in 1919, when the volume of new issues was small, and the cost of money high and only most pressing needs were met, 60.3% was for new capital purposes; 39.7% was for refunding. In 1924–1925, when the total volume was above a billion and a half, only 13.3% was for refunding operations. Furthermore, most of the refunding operations in 1919–1920 were short-term in anticipation of lower cost of money; after 1920, with rapidly falling interest rates, the chief motive for short-term financing no longer controlled, and longer-term refunding followed.

Under these market conditions too, an increase in the amount of capital obtained by stock issues was to be expected. The percentage of stock to total public utility financing reached a peak in 1924 with 34.1%. But 1927 was not far behind, and for the entire nine-year period 26.71% of total volume issued was stock (the ratio being lower because of the small proportion of stock issues in the early years of the period). In 1919–1921 only a few public utilities found it desirable or possible to raise new capital by issue of stock. With yields on bonds at extraordinary levels, the cost of capital through stock issues was generally prohibitive, and the par value of stock issues in those years was only 7.8%, 12.1%, and 18.7% of the total volume of financing. However, stock issues for the period were chiefly for new

TABLE II. VOLUME OF NEW PUBLIC UTILITY FINANCING BY CLASSES OF ISSUES, BY YEARS, 1919–1927

YEAR	LONG TERM BONDS		SHORT TERM BONDS		STOCK	
	Volume*	Percentage of Total	Volume*	Percentage of Total	Volume*	Percentage of Total
1919	$117,046,000	41.98%	$126,486,800	45.36%	$ 35,304,950	12.66%
1920	199,998,100	52.31	127,026,252	33.22	55,314,700	14.27
1921	349,975,000	71.14	24,872,000	5.06	117,087,940	23.80
1922	431,081,339	59.36	19,445,000	2.68	275,715,170	37.96
1923	588,821,471	66.31	48,712,200	5.49	250,457,058	28.20
1924	722,018,123	54.47	107,032,000	8.07	496,550,704	37.46
1925	857,787,400	57.33	117,540,000	7.86	520,771,004	34.81
1926	1,047,216,330	65.27	92,283,100	5.75	464,885,946	28.98
1927	1,209,439,510	58.30	82,427,800	3.97	782,607,178	37.73
Average for period	.....	59.6	.....	8.1	.....	32.3

* Par values.

TABLE III. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW PUBLIC UTILITY SECURITY ISSUES

YEAR	ALL TYPES OF SECURITIES						BONDS AND NOTES	
	ALL MATURITIES		LONG TERM		SHORT TERM			
	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield
1919	6.55	6.68	6.21	6.25	6.78	7.03	6.54	6.67
1920	7.55	7.64	7.52	7.59	7.59	7.68	7.53	7.62
1921	7.13	7.47	7.11	7.42	7.27	7.66	7.11	7.45
1922	6.06	6.34	6.03	6.32	6.39	6.53	6.03	6.34
1923	6.04	6.31	5.99	6.26	6.73	6.72	6.11	6.29
1924	6.03	6.14	6.04	6.16	5.97	6.04	5.98	6.12
1925	5.58	5.81	5.66	5.83	5.55	5.86	5.56	5.78
1926	5.53	5.72	5.52	5.70	5.77	5.82	5.44	5.66
1927	5.24	5.61	5.25	5.57	5.11	5.77	5.12	5.57
1st Quarter	5.43	5.71	5.42	5.71	5.70	5.73	5.33	5.66
2nd Quarter	5.34	5.61	5.34	5.57	5.35	5.84	5.17	5.58
3rd Quarter	5.32	5.61	5.30	5.54	5.54	5.94	5.27	5.57
4th Quarter	5.04	5.50	5.07	5.47	4.75	5.63	4.94	5.46

capital, not for refunding requirements, and represented an increasing proportion of the total new capital public utility issues (Table II). For the nine-year period, stock for new capital ($2,998,-694,650) was 32.35% of all *new* capital public utility issues ($9,267,903,166).

The major part of all capital was obtained through long-term bond and note issues. Only in 1919–1920, as already pointed out, did short-term financing requirements overtop other types of financing. In 1927 long-term financing was 66.8% of the total public utility financing; short-term was 4.7%. These ratios compare with 69.91% and 5.4% respectively in 1926; and 59.5% and 8.7% respectively in 1925. The average proportion of new long-term and of short-term financing to total new public utility financing in the entire period was 59.60% and 8.13% (Table II).

The yield at offering price on new public utility securities issued during

TABLE IV. QUARTILE DISTRIBUTION OF THE VOLUME OF THE NEW PUBLIC UTILITY SECURITY ISSUES ON THE BASIS OF YIELDS, 1919–1927*

		1919	1920	1921	1922	1923	1924	1925	1926	1927
1st Quartile	Range	5.30–6.16	5.88–7.10	5.50–6.25	4.70–5.50	4.65–5.62	4.70–5.60	4.30–5.30	4.50–5.10	4.15–4.85
	Simple Average Yield	5.82	6.72	6.07	5.26	5.31	5.33	5.03	4.99	4.64
	Weighted Average Yield	5.87	6.84	6.14	5.34	5.38	5.27	5.02	4.97	4.68
2nd Quartile	Range	6.16–6.30	7.10–7.60	6.25–7.30	5.50–6.05	5.62–6.10	5.60–6.00	5.30–5.50	5.10–5.40	4.85–5.11
	Simple Average Yield	6.22	7.38	6.98	5.83	5.91	5.85	5.44	5.26	5.01
	Weighted Average Yield	6.21	7.39	6.97	5.78	5.83	5.79	5.36	5.23	5.02
3rd Quartile	Range	6.30–7.00	7.60–8.00	7.30–7.65	6.05–6.50	6.10–6.38	6.00–6.40	5.50–6.00	5.40–6.00	5.11–5.53
	Simple Average Yield	6.73	7.84	7.46	6.28	6.23	6.21	5.76	5.70	5.30
	Weighted Average Yield	6.81	7.79	7.41	6.25	6.19	6.21	5.66	5.68	5.24
4th Quartile	Range	7.00–8.00	8.00–9.32	7.65–9.00	6.50–8.00	6.38–7.50	6.40–8.00	6.00–7.06	6.00–7.50	5.53–7.40
	Simple Average Yield	7.35	8.18	8.09	7.03	6.76	6.77	6.31	6.27	6.12
	Weighted Average Yield	7.29	8.20	8.03	6.86	6.75	6.86	6.31	6.25	6.03
Total	Range	5.30–8.00	5.88–9.32	5.50–9.00	4.70–8.00	4.65–7.50	4.70–8.00	4.30–7.06	4.50–7.50	4.15–7.40
	Simple Average Yield	6.67	7.62	7.45	6.34	6.29	6.12	5.78	5.66	5.61
	Weighted Average Yield	6.54	7.53	7.11	6.03	6.11	5.98	5.56	5.44	5.24

* Compiled from the records of the *Commercial and Financial Chronicle.*

1927 was 5.24% on the average dollar and 5.61% for the average issue, a material reduction over the averages for 1926 (Table III) and in fact the lowest in the period of this study. A quartile distribution of the volume of new public utility security issues on the basis of yields is presented in Table IV for the entire period 1919–1927. Issues falling below the first (lowest) quartile range were offered to yield only 4.68% on the average dollar; those falling between the first quartile and the median 5.02%; between the median and the third quartile, 5.24%; and those at yields higher than the third quartile point, 6.03%. Thus half of the new public utility financing during 1927 was at an average rate of 4.85% while the average for all was at 5.24%. That half of new financing whose yield was above that of the median issue was offered to yield an average of 5.64%. It will further be noted from Table IV that the quartile range of those issues falling between the first quartile and the median was only 4.85% to 5.11% or .26%. Comparisons between the year 1927 and previous years are afforded by Table IV.

The gas and electric industry continued to absorb during 1927, the principal share of the total public utility financing with 53%, although this is less by 15.1% than its portion in 1926. Increased amounts were absorbed by gas companies, which issued 12.4% of the 1927 total as against approximately 3.5% in 1926 and 1925.

DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Research in Land Economics and Public Utilities.

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In this department are given brief accounts of investigations in progress and statements of tentative conclusions reached in the course of work by the staff of the Institute and others associated with the Institute's work.

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SUMMARIES OF RESEARCH

TRENDS IN ELECTRIC PRODUCTION AND REVENUE

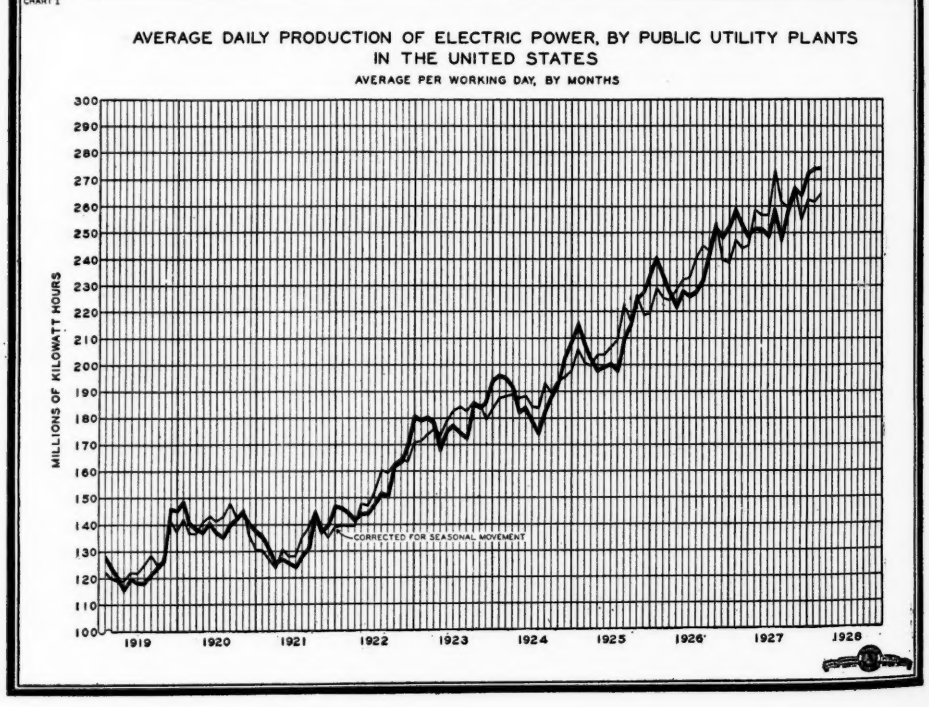
THE electric industry has established an enviable record by the regularity of its growth. The marked increase in both electric production and electric revenue is shown on Chart I and Chart II.[1] It is seen that in no year has electric revenue failed to rise above the level of the preceding year. From 1922 to 1927 average monthly revenue increased 64%, from $90,825,000 to $149,291,000. Revenue continued to grow till in 1927 it was double the 1920 figure.

In this same period, 1922 to 1927, average daily electric production grew from 154,000,000 K.W.H. to 257,000,000 K.W.H., an increase of 67%.

In general then, production has increased more rapidly than revenue, especially in the three years since 1924. This seems to be largely the result of the increased use of electricity for industrial purposes.

The growth from 1920 to 1927 may be seen best in the movements of the narrow lines on Chart I and Chart II. Seasonal variation has been removed from these series, yielding a smoother curve, free from the seasonal peaks and hollows found in the curves of the original data. The smoothing effect is more noticeable for revenue than for production. Tracing through the curve, we find that for rev-

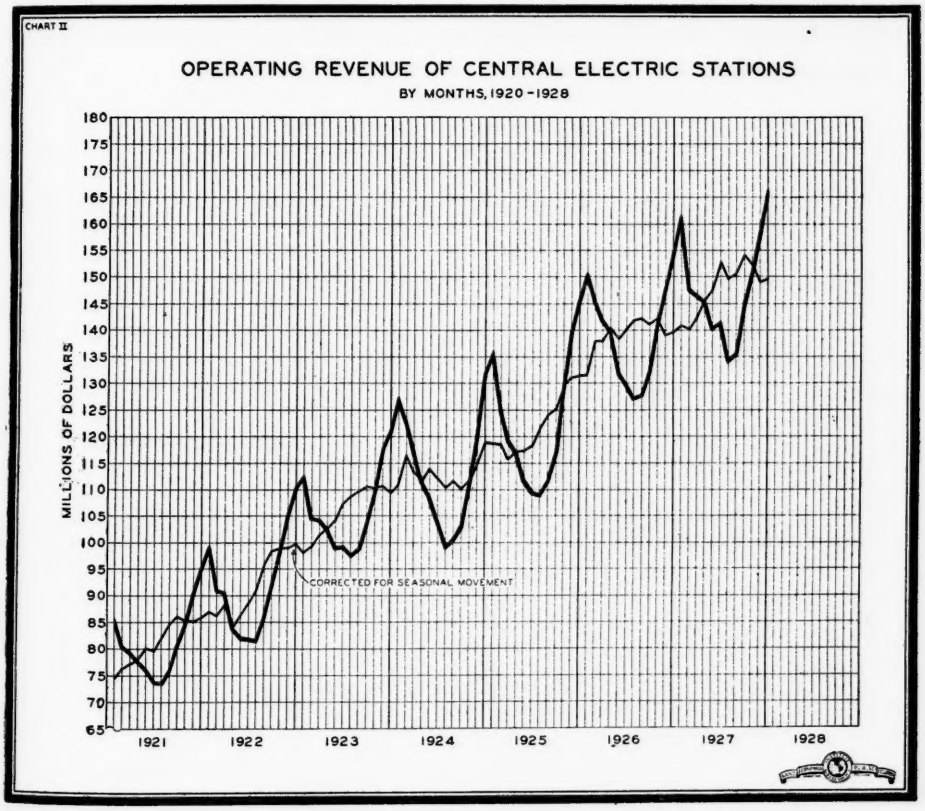
[1] Electric production data are derived from the *Monthly Reports*, U. S. Geological Survey, 1919 to date, and the revenue data from *Survey of Current Business*, U. S. Department of Commerce, 1923 to date.



enue the curve was low in 1921 and in 1922, rose in 1923, fell in 1924 and 1925, recovered in 1926 and stayed close to normal in 1927. For production, the movement is less regular. As with revenue, however, the curve was low in 1921, having slumped considerably from the high level maintained during 1919 and 1920. In 1922 it rose rapidly, reaching another high point in 1923, fell in 1924, and then continued its upward sweep.

Contrary to common belief, electric revenue has a seasonal characteristic that is not only of greater amplitude than that of production but is more precise in its movement toward the winter peak. It has generally been supposed that production varied more than revenue. In support of this statement it was said that the commonly used rate system with its step rates and minimum charges tended to check revenue fluctuations. When production increased, sales were usually made at the lower step-rates, while, on the other hand, a decrease in production invariably led to charges at the higher rates. This situation exists when a company serves a single class of consumers. But for the country as a whole and for the large companies serving well-diversified territory, the seasonal movement of revenues is found to be greater than the movement of production.

Table I contains the seasonal indexes, computed by the link-relative method,



for electric production and revenue in the United States. It is to be noted that the production index itself does not contain any element of adjustment for irregularities in the length of the months, because of the previous adjustment of production to a working day basis. Al-

TABLE I. INDEXES OF SEASONAL VARIATION FOR ELECTRIC PRODUCTION AND REVENUE IN THE UNITED STATES, 1919–1927

Month	Total K. W. H. Production	Gross Revenue
January	106	114
February	102	105
March	99	103
April	97	100
May	97	95
June	95	92
July	93	90
August	97	90
September	100	94
October	102	99
November	105	106
December	105	111

though the two indexes are thus not entirely identical, they may be accurately compared as to the range and the time of their respective movements. Only slightly different indexes are obtained when computed from the total monthly basis in each instance. The greater seasonal movement of revenue is readily apparent. Revenue moves from 90 to 114 whereas production stays within a range of 93 to 106.

The same results are obtained when we compare the seasonal movements of production and revenue of a large electric company operating in the East. They have a still wider range than the indexes for the country as a whole. The company revenue moves from 84 to 121 and production from 88 to 114. The company index for lighting has the widest range, from 72 to 139, and hence indicates a power load that is fairly stable. This is indeed the case.

Explanation of the wider seasonal movement of electric revenue can be found in the large power load now being carried during the slack summer season. Output is maintained at a high level during the year by the encouragement of the industrial load which is given to the power customers at relatively low rates. Thus the output remains more nearly constant throughout the year, because it is made up of at least two classes of load, each returning a different amount of revenue. In the winter, lighting furnishes a high class load, whereas in the summer the lighting load falls off and the industrial load grows in importance. Hence, for the electric industry as a whole, the low point of production in the summer represents a still lower point in revenues, and the high winter peak brings a more than proportional increase in revenues.

M. H. UMBREIT
W. H. MARPLE

THE COST OF RAILWAY CAPITAL UNDER THE TRANSPORTATION ACT OF 1920.

A CONTINUED downward trend of the cost of railway capital is shown by carrying forward through 1927 the previous analysis of data from the Interstate Commerce Commission on security issues.[1] During the past calendar year the average cost for all securities was 5.13% compared with 5.23% in 1926 and 5.67% for the eight-year period. The yield on all se-

[1] H. B. Dorau, "Cost of Railway Capital Under the Transportation Act of 1920", 3 *Journal of Land & Public Utility Economics*, 1-20, (February, 1927); also 3 *Journal of Land & Public Utility Economics* 427-430 (November, 1927).

TABLE I. COMPARISON OF TOTAL COST OF RAILWAY CAPITAL WITH RATIO OF OPERATING INCOME TO INVESTMENT, AND OF NET INCOME TO STOCK, OF OPERATING STEAM RAILWAY COMPANIES*

YEAR	COST OF CAPITAL SECURED BY ISSUANCE OF:				RETURN EARNED	
	All Securities	Bonds	Equipment Trust Certificates	Misc. Securities	On Investment	On Stock
1920	7.29	7.34	7.28	7.01	.06	5.45
1921	7.21	7.23	6.76	7.64	2.96	3.94
1922	5.86	5.92	5.71	6.00	3.74	4.85
1923	5.61	5.38	5.72	6.45	4.56	6.95
1924	5.54	5.61	5.27	6.11	4.44	6.70
1925	5.45	5.63	5.04	5.20	5.00	8.19
1926	5.24	5.36	4.97	5.26	5.15	9.44
1927	5.13	5.16	4.61	5.61	4.40	.....
1920–1927	5.67	5.74	5.43	6.06	3.78	.....

* Includes all securities on which price to the company is available, whether price to investor is available or not.

curities, at the price received by the company was 5.13% for 1927, compared with 5.23% in 1926 and 5.44% in 1925. The yield in the fourth quarter of 1927 fell as low as 5.01% from 5.24% at the beginning of the year.

The decline was registered principally in two classes of securities, bonds and equipment trust certificates. Bond yield in 1927 was 5.16%, compared with 5.34% in 1926 and 5.63% in 1925; and the yield on equipment trust certificates dropped to 4.61% from 4.97% in 1926, and 5.06% in 1925. At the beginning of the period of this study, namely, 1920, the yield on equipment trust certificates was 7.28%, and on bonds was 7.34%.

Reference to Table I discloses that the return earned on the investment over the period 1920–1927 was 3.78% and that the average cost of capital secured during this period was 5.67%. The closest that the rate earned on "investment" ever came to the cost of capital during

TABLE II. SUMMARY OF COST OF RAILWAY FINANCING EXPRESSED IN VARIOUS WAYS, BY YEARS AND FOR THE PERIOD, 1920–1927*

YEAR	ALL CLASSES†				BONDS				EQUIPMENT TRUST CERTIFICATES				MISCELLANEOUS			
	y–o	z/x	z/n	Yield Difference	y–o	z/x	z/n	Yield Difference	y–o	z/x	z/n	Yield Difference	y–o	z/x	z/n	Yield Difference
1920	3.66	3.66	3.80	.52	3.47	3.47	3.59	.50	3.98	3.97	4.13	.56	.....	.....	.....	.....
1921	4.38	4.51	4.72	.47	4.54	4.68	4.91	.50	2.44	2.44	2.50	.08	2.68	2.78	2.86	.39
1922	3.25	3.36	3.48	.29	3.55	3.69	3.83	.26	2.28	2.30	2.35	.35	.....	.....	.....	.....
1923	2.54	2.59	2.66	.32	2.65	2.74	2.82	.16	2.55	2.58	2.65	.38	1.51	1.52	1.55	.67
1924	2.67	2.73	2.80	.24	3.16	3.26	3.37	.23	1.86	1.88	1.91	.08	1.71	1.71	1.74	.86
1925	2.49	2.55	2.62	.24	2.74	2.82	2.90	.21	1.75	1.76	1.79	.31	4.75	4.80	5.04	1.20
1926	2.23	2.28	2.34	.21	2.62	2.69	2.77	.18	1.48	1.50	1.52	.24	1.00	1.01	1.02	.54
1927	2.39	2.46	2.53	.16	2.60	2.70	2.77	.16	.66	.66	.66	.10	2.00	2.02	2.06	.74
1920–1927	2.82	2.89	2.97	.27	3.16	3.26	3.37	.25	2.03	2.05	2.09	.26	1.69	1.71	1.74	.78

* See 3 *Journal of Land & Public Utility Economics* 1–20 (February, 1927) for complete explanation of meaning and significance of symbols. They are here summarized as follows:

† On the per dollar basis throughout.

y–o is the difference between average price per hundred received by the company and the average price per hundred paid by the investor.

$\frac{z}{x}$ = Ratio of the banker's share to the value of the issue or issues at the price at which the investor absorbed them.

$\frac{z}{n}$ = Ratio of the banker's share to the actual dollars received by the company.

Yield Difference—difference between yield per dollar to maturity at price to the Company, and at price paid by the investor.

this period was in 1926 when the rate earned was 5.15% and the cost of capital 5.24%. Since 1925 the rate earned on the "investment" has been lower and, although the cost of capital also fell, the difference became greater in 1926 and 1927.

The cost of financing—that is, the spread between the price received by the railway company and the offering price to investors—fell to .16% per dollar in 1927, from .21% in 1926 and .24% in 1925. This is by far the lowest annual figure in the period of the study. Although the third quarter figure went as low as .13%; the second and fourth quarter figures were .15%. This means that the difference between the yield at the price received by the company (5.06%) and that at the offering price to investors (4.90%) averaged .16% for all securities issued during 1927. In 1920, the figure was .52% per dollar.

Along with these lower costs, there were more security issues. The total volume of financing reached $677,672,290 compared with $432,664,308 in 1926 and $543,476,440 in 1925.

HERBERT B. DORAU

COMMENTS ON LEGISLATION AND COURT DECISIONS

THE CALIFORNIA PLANNING ACT OF 1927[1]

The Standard City Planning Enabling Act prepared by the United States Department of Commerce has become a pattern for comprehensive enabling legislation for planning purposes. Several states have used separate parts of this act as models for their legislation, but in California the act has been taken in its entirety and adapted to the particular problems of that state. The California Planning Act of 1927 follows the Standard Act closely both in organization and in phraseology, and even the copious explanatory notes, which accompany the special edition of the Act prepared for general distribution, nearly parallel the annotations of the Standard Act.

In scope the California Act is the broader, for it gives planning powers not only to cities, but to counties, to cities and counties combined, and even to other political bodies, such as park boards, sanitation district boards and the like, which have legislative authority. It supplies the basis for the planning activities of local units. However, the Act is permissive, not mandatory.

The California Act is divided into four parts. The first has to do with the master plan and the establishment of the planning commission. The master plan is of primary importance because upon its adoption hinge certain of the other powers granted by the Act. For example, the authority of the planning commission to pass upon public improvements may not be exercised until after the adoption of a master plan. Nor may land subdivisions be controlled, improvements in unapproved streets be installed nor building in mapped streets be regulated, until at least that part of the master plan which has to do with major street planning has been completed.

An interesting point with reference to the master plan is the very broad definition of that term in the notes. In addition to the usual items, such as major street, zoning and transportation plans, the California authorities would include in their concept of a master plan, "a plan and program for better housing, including housing code," and "plans and ordinances for architectural control of private buildings, embellishment of the city and increase of the amenities of life."

Section 5 of the Act, which outlines the purposes of this part of the legislation, contains specific provision for "improvement and control of architecture" as one of the means of securing "harmonious development" which is the general purpose of the city plan. This is a significant addition to the list as given in the Standard Act. It is not surprising to find this item here, for California is pioneering in the development of this type of control. Public control of architecture is still in the experimental stage and has yet to win its spurs in the inevitable conflict with the courts.[2] To find it included here shows California's determination to try this new method of controlling city development.

The remainder of this part of the Act is concerned with the usual details of the organization and duties of the planning commission but two provisions deserve

[1] California Statutes of 1927, Ch. 874.

[2] See Planning Problems of Town, City and Region, Papers and Discussions, National Conference on City Planning, 1927: Charles H. Cheney, "Progress in Architectural Control," pp. 248–262; and Elvon Musick, "Legal Authority for Architectural Control," pp. 269–283.

special mention. The legislative body is empowered to "levy and collect a tax, not to exceed in any fiscal year the sum of two mills on the dollar of assessed valuation for the purpose of defraying the lawful expenses incurred by the planning commission in carrying out the purposes of this Act, and may make appropriations from other funds therefor." Although this method of financing planning activities does not strictly conform to modern budgetary ideas, it is encouraging to find definite provisions made for securing funds for this work.

The other interesting item is found in Section 4, which empowers the commission of any particular area to extend its plans to cover "any land outside its boundaries which, in the commission's judgment, bears relation to the planning thereof." This seems a broad grant of powers and one likely to result in conflict between contiguous jurisdictions. But the notes point out that this merely provides for the making of a plan, "which may or may not be carried out," and therefore does not necessitate interference by one body in the jurisdiction of another. However, there may be a weakness in this permission to make the master plan so extensive. The commission cannot enforce a plan outside its jurisdiction and, by undertaking something it cannot carry out, its position within its jurisdiction may be endangered. The notes also suggest that this may be a means of promoting cooperation within a region, but such an outcome depends on many other factors.

The binding nature of the master plan and the power of the planning commission to control city growth and development are set forth in Section 8 of the Act.

"Whenever the legislative body shall have adopted the master plan of the city, city and county, or county, of any major section or district thereof, no street, square, park, or other public way, ground or open space, or public building or structure shall be constructed or authorized in the area shown on said master plan until the location, character, and extent thereof shall have been submitted to and approved by the planning commission."

The power of the planning commission is not final nor absolute, however, for there is a provision that the appropriate legislative body may overrule by a two-thirds vote of its membership the commission's disapproval of any proposed construction or of any proposed changes or additions to the master plan.[3]

Part II deals with the very important matter of subdivision control. After defining territorially the various subdivision jurisdictions provided for, the Act requires that the planning commission shall establish rules and regulations to guide subdividers' activities. In addition to the more obvious demands which may be made upon the developer, such as that he provide against traffic and population congestion, it is provided that the commission may determine the "extent to which streets and other public ways shall be graded and improved and to which water and sewer and other utility mains, or other facilities shall be installed as a condition precedent to the approval of the plat." Adequate provisions permitting commissions to set requirements with respect to these last two items, which have to do with the improvement of building lots and making them ready for use, are most important, for herein lies one of the most effective means of control by a city.

From the point of view of the planning commissions, this requirement that they establish rules to regulate platting has

[3] Planning programs have frequently suffered at the hands of legislative bodies and this clause, in spite of the two-thirds rule, provides a loophole which may endanger the city plan.

the virtue of protecting them against the accusation of too arbitrary use of their powers. It also protects the subdivider who in turn is further safeguarded by the requirement that a public hearing be held on each plat before action is taken by the planning commission. Provision for court review is not made specifically, although, of course, this method of seeking relief is always open to the subdivider, if he so chooses.

Then come the sections which put teeth in the measure. The requirements can best be shown by quoting Section 18 of the act.

"Whoever being the owner or agent of the owner of any land located within the territory of a subdivision subject to the approval of a planning commission, or legislative body, transfers or sells, or agrees to sell, or negotiates to sell, any land by reference to or exhibition of or by other use of a plat of a subdivision before such plat has been approved by said planning commission and legislative body and recorded or filed for record as so approved in the office of the appropriate county recorder, shall forfeit and pay a penalty of one hundred dollars for each lot or parcel so transferred or sold, or agreed or negotiated to be sold, and the description of such lot or parcel by metes and bounds in the instrument of transfer or other document used in the process of selling or transferring shall not exempt the transaction from such penalties or from the remedies herein provided. The city, county, or city and county, may enjoin such transfer or sale or agreement by action for injunction brought in any court of equity jurisdiction, or may recover the said penalty by a civil action in any court of competent jurisdiction."

The strength of this section lies in the size of the penalty which is imposed directly upon the non-conforming subdivider. In addition to this direct control, the measure is further strengthened by making it a misdemeanor for a county recorder to record a plat without the approval of the planning commission and fining him not less than $100 nor more than $500. Another provision for indirect control is that streets and utility connections shall not be accepted or opened unless the right of way has the status of a public street or corresponds to a street approved or planned by the commission. Still another means of control is put in the hands of the planning commission. The erection of buildings or the issuance of permits for buildings on unaccepted streets is prohibited, and violation of this rule may result in the vacation and removal of that building by the proper authority.

As to provisions for parks, playgrounds, and so forth, the Act is not specific. The various commissions may exercise their discretion on this point. These are among the items which the local planning commission may require in its platting rules and reference is also made to their possible dedication to the public. In contrast, the New York Act[4] is somewhat more specific, although it also leaves the matter to the discretion of the planning board. Section 33 of the New York Act states that "before the approval of the planning board of a plat showing a new street or highway, such plat shall also in proper cases show a park or parks suitably located for playground or other recreation purposes."

The third part of the California Act deals with the problem of building in mapped streets. Careful provision to prevent this contingency is essential in preserving the city plan. California has chosen the method, suggested in the Standard Act, of employing the power of eminent domain to accomplish this control. Considerable difference of opinion exists whether the more effective instrument of control is the police power or eminent domain. The latter is commonly referred to as the Massachusetts method. The former, which is advo-

[4] New York Laws of 1926, Ch. 690, an act to amend the general city law, in relation to official maps and planning boards.

cated and practiced in New York, involves a blanket prohibition against erecting buildings in mapped streets but provides machinery for adjusting this general rule when it would cause too great hardship on the property owner.

The California Act provides that the planning commission may from time to time make surveys and maps for the purpose of locating future streets and these surveys and maps shall pass through the same procedure as the other maps which the commission is authorized to make until they become a part of the public record. A part of this procedure calls for an estimate as to the length of time which may elapse before the land designated for future street use shall actually be taken by the city. This procedure and the filing of the map constitute a reservation, not an actual taking, of that land for street purposes. At any time during the period of reservation the commission may negotiate with the owners of the land in question and arrange for the payment of the necessary compensation for damage caused by the reservation. The owner is free to use his land in any way he may desire during the period of reservation but his compensation at the time of taking cannot cover any improvement erected during that time. In the language of the Act

> "No compensation other than the compensation awarded in the final report of the board of appraisers, appointed by the legislative body, shall at any time be paid to or recovered by any person for the taking of or injury to any building, structure, or other improvement, built, within the period fixed in the resolution of the legislative body, upon any land included within the street locations specified on any such plat or map adopted as herein provided."

The powers granted in this part of the law are carefully circumscribed in an effort to protect the property owner. First of all, there is the requirement that a public hearing shall be held before the planning commission officially adopts its map of future streets. Then the legislative body passes upon the proposed plan, and retains the power to abandon the reservation at any time or the legislative body may, by agreement with property owners affected, modify the location of streets as set forth in the plan. Still further protection is to be found in the elaborate provisions for hearing and overruling protests which may be filed in accordance with certain rules.

The final part of the Act provides the machinery for setting up regional planning bodies where desirable. Only one item in this section requires comment. If a planning commission or a group of 100 citizens decide that a regional planning unit is desirable for a given area, they may petition the governor to that effect. If, after a public hearing on the matter, the governor agrees, he may appoint a regional planning commission and define the limits of the region. The wisdom of putting into the hands of one man, who is probably not a planning expert, the power to define the limits of a region may well be questioned. To determine the extent of a region for planning and administrative purposes is a difficult task, requiring thorough knowledge of the economic as well as the political factors involved.

The California Act will afford opportunity for testing comprehensive enabling legislation for planning. Its provisions seem no more drastic than did those of zoning legislation when it was on trial. The courts have been developing a more friendly attitude toward planning legislation and zoning legislation in particular and, although experience will no doubt work changes in such acts, nevertheless California deserves credit for pioneering in this field.

HELEN C. MONCHOW

BOOK REVIEWS

Glaeser, Martin G. OUTLINES OF PUBLIC UTILITY ECONOMICS. *New York: Macmillan Company, 1927. pp. xxi, 834. $4.25.*

Professor Glaeser's book is the first systematic, comprehensive treatment of public utility economics to appear in American economic literature. Other writers have restricted themselves to particular problems or to particular types of utilities; Professor Glaeser has included railroads as well as local utilities in the scope of his book and has organized and interpreted his diverse material in such a way as to present a unified picture of the central economic problems of the public service industries as a whole, the lack of which in the past has handicapped constructive thinking on these problems.

The author's approach is "largely historical and economico-legal in character," as might be expected from a student of Professors Ely and Commons and Dean Roscoe Pound. His acquaintance with facts and opinions is derived not only from teaching experience but also from years of employment with the Railroad Commission of Wisconsin, in consulting and research service with public and private corporations, and as a member of the staff of the Institute for Research in Land Economics and Public Utilities. Hence, though he writes primarily for university students, he wishes also to aid the general reader, the administrator and the executive.

A distinctive feature of the organization of the subject-matter is the central position accorded the theory of the going concern as a "unifying idea which brings the details into organic connection." This theory may offer difficulties to the elementary student or general reader but it is well worth the study required to grasp it because of the light it throws on the nature and the solution of practical problems. The fundamental idea in the theory is the recognition of a public utility as an economic organization whose membership includes all those having economic relationships with the utility—customers, supply firms, bondholders, officers and employees, as well as the shareholders who constitute the "bare legal organization"—all of whom are interested in maintaining "the profitable, continuous and efficient rendition of service." To insure such rendition of service, those in charge of the management and regulation of public utilities must co-ordinate the flow of transactions among the different classes of members according to reasonable working rules. This necessitates continuous study of, and adaptation to, the varying conditions of investment bargains, price bargains, labor bargains, tax bargains, and rate bargains which public utilities must enter upon again and again in the conduct of their business.

This analysis of the public utility as a going concern follows a discussion of the nature and scope of the public utility concept, its historical development and the legal organization of public utilities and is supplemented by a chapter on accounting methods, in which the author describes the recording of these cost and income transactions as an additional tool needed for the study of the subject.

Against this background of "the economic basis of public utility enterprises," Professor Glaeser presents the remainder of his material in three parts: "The Development of Agencies of Regulation in the United States"; "The Administration of Public Utilities under Regulation"; and "Trends in Public Policies affecting Utilities."

In tracing the development of agencies of regulation Professor Glaeser finds a beginning in the public functions of ancient times. He seeks the legal and economic tests which today determine judicial classification of a business as a public utility by reference to leading decisions of the United States Supreme Court and to the English common law. He confesses difficulty in finding adequate *legal* interpretation of these tests. "From an economic point of view . . . the notion of a public utility is made up of two ideas: (a) the idea of monopoly and (b) the idea of necessity." The significance of the legal classification of public utilities "resides not so much in the character of the industry thus classified, as in the complex of rights and duties that go with such classification." In line with this historical and legal approach the author points out that the industries or occupations which are recognized as "affected with a public interest" change with time and circumstances.

The successive policies and agencies through which regulation of industries in the public utility class has been accomplished are treated historically—pre-commission, special franchises, state and federal commissions, flexible rate franchises. Considerable attention is given to the indeterminate permit and to flexible rate franchises in connection with local autonomy in public utility control. Incidental warning is given against the "suicidal" policy of permitting regulation under state commissions to "settle down to a complacent routine."

The term "administration" as used in the title of Part III is intended to convey the broad idea of control, whether exercised by administrative commissions or public utility executives, rather than that of mere management. The material selected and the principles set forth make it clear that Professor Glaeser approaches his subject from the standpoint of the regulatory agency; he is primarily interested in that sphere of utility management and operation which comes under the scrutiny of agencies of control. Thus the central problem of public utility economics—rate control—has two aspects: (1) That of "furnishing reasonably adequate service and facilities" and (2) that of "insuring the collection of a reasonable and just charge for every service rendered."

The fixing of a rate-base is one consideration. Valuation principles are still subject to much uncertainty but the "capitalization of income standard" has been found "inapplicable" and choice has thus been "narrowed down to the investment and cost of reproduction standards" with courts and state commissions tending to rely more and more upon some form of the latter. Though Professor Glaeser is an advocate of the investment standard, he is not unmindful of the difficulties of adjusting past investments. For the future certainly "the only satisfactory solution is to treat a corporation as a going concern, requiring continuous investments of capital, and not as a concern which must constantly refinance itself and reshape its financial plan in accordance with the cost of reproduction of an 'identical plant' or of some mythical 'substitute plant.'" To insure public utility investors a fair return in periods of high prices the rate of return, and not the rate-base, should be varied.

The rate of return allowed must vary with the "security or insecurity of investment." Causes of insecurity should therefore be removed or provided for. Insecurity of investments arising from competition or other inadequate control of the market and from abuses in cor-

porate financing is preventable by proper policies of control. But depreciation is an inherent and unavoidable cause of insecurity and systematic provision must be made to meet it. The difficulty of estimating depreciation is not a valid argument against this policy. Depreciation should be charged as an operating expense and not treated as a deduction from net income or reservation of surplus. Professor Glaeser is inclined to favor the sinking fund method of accumulating reserves and, notwithstanding certain views of our highest court, to insist that these reserves should be held inviolate.

In the author's opinion the question of what is a fair rate of return has been confused by the commission practice of fixing a single rate on the total value instead of differentiated rates for the various classes of investors. This practice has not permitted recognition of differences in the quality of management and changing economic conditions. Professor Glaeser suggests a flexible rate-of-return formula, illustrated in the proposed Milwaukee Operating Agreement, which differentiates between borrowed capital and "risk capital" and recognizes changing rates of interest in the investment market.

The remaining chapters in this part of the book contain much valuable material which in this review can only be hinted at by reference to chapter headings. The discussion of valuation and rate of return ends with chapters on appraisals, a critique of valuation standards, and necessary reconciliations in dealing with past investments. Thereafter, the author deals with labor policies and legislation, control of prices paid for materials and other property, taxation, control of service standards, the economics of regulated monopoly price, cost analysis as a basis for determining rate schedules, and differential rates.

Professor Glaeser's appraisal of trends in public policies directs attention chiefly to the problem of public ownership and to the problem of decentralized control. His attitude toward public ownership is objective. He deplores the emotion and prejudice on both sides of most discussions of the subject, and maintains that there is no universal answer; the problem must be solved in the light of "conditions in a specific place and time." We may be able to avoid "placing an overweight of economic responsibility upon governmental institutions" by "fashioning an instrument" which will blend "increased social responsibility on the part of private enterprises with an improved quality and technique of regulation." But if we do turn to public ownership, these utilities should be segregated from other governmental activities with suitable checks to the tendency to carelessness, slothfulness and "political nepotism" in public management. The "instrument" which Professor Glaeser feels is most adapted to Milwaukee conditions, of which he has made a special study, is the proposed service-at-cost operating agreement, whereby with decentralized control the municipality might gradually acquire ownership when, as, and if it was ready to undertake the responsibility. An appendix giving the main provisions of that agreement contains details of his plan for harmonizing public ownership with decentralized regulation.

W. M. DUFFUS

Teele, Ray P. ECONOMICS OF LAND RECLAMATION IN THE UNITED STATES. *Chicago: A. W. Shaw Company, 1927. pp. xv, 337. $4.*

Does land reclamation in the United States now justify its cost? The answer

is "No." That is the impression derived from reading "Economics of Land Reclamation" by the late R. P. Teele, who devoted the last 25 years of his life to studying this complicated question. On page after page of clearly and impartially stated facts and figures, Mr. Teele has shown that land reclamation, though heavily subsidized, especially by the Federal Government, has not been an economic success. The present or proposed reclamation enterprises are demanding ever larger subsidies to the landowners.

The granting of a subsidy or a bonus to the landowners in connection with reclamation is now a well-recognized practice; it is defensible on many grounds. The questionable thing about any subsidy of this kind is whether it is obtained through suppression of essential facts. If subsidies are to be granted, let them by all means be on the basis of complete knowledge. Congress should not permit money to be taken indirectly from taxpayers by false pretenses.

Mr. Teele was one of the few men in government employ who has had the courage and patience to expose some of these disagreeable facts. In his Department of Agriculture Bulletin No. 1257, issued in August, 1924, he brought out for the first time the fallacies with reference to the payment of the entire costs of reclamation. He showed that, while the landowners were supposed to repay this cost in annual installments, as a matter of fact the real cost was never repaid, because no consideration has been given to the interest charges on deferred payments. Moreover, Congress, by adopting the policy of annually considering bills to relieve the landowner at the cost of the taxpayers, has forced the public to pay to the landowner on federal reclamation projects two or three times as much as the owner of these reclaimed lands may reasonably be expected to return ultimately to the Treasury.

This is perfectly proper, for, if the public in general is widely benefited by the reclamation of lands, it should pay a fair share of the cost. Mr. Teele recommends a policy by which costs of construction and operation of reclamation works should be made a general obligation not only upon the land directly benefited, but also upon other property in the locality, urban or industrial, which is benefited by such reclamation. This is in contrast to the existing system of practically assessing the larger part of the cost upon the taxpayer. This is brought about in such ingenious ways that the citizen in New England, Florida or elsewhere does not know how or why he is paying.

Even if there is no moral turpitude in this concealment of the real costs of reclamation, there is real doubt as to whether these burdens on the taxpayers are justified. A quarter of a century ago a demand for more land justified the diversion and use of federal funds for reclamation to provide opportunities for homes then eagerly sought by would-be self-supporting American citizens.

Times have changed. Millions of dollars have been spent by the departments of agriculture, federal and state, largely for the purpose of teaching the landowners how to produce more crops per acre and per man. Farm machinery operated by tractors, also labor-saving electrical devices are bringing about an industrial revolution in agriculture. Standardized mass production and cooperative distribution render unnecessary the tilling of millions of acres of relatively inferior lands formerly cropped. Tens of thousands of farm laborers are not needed; thousands of farm animals have disappeared, and bushes are cover-

ing millions of acres formerly in forage crops. The prospective increase in production per man and per acre will more than offset the probable increase in population. Even though industrial United States doubles in population, an ample supply of food is possible from a diminishing acreage handled scientifically by modern machine methods. The lessons taught by Henry Ford are making their way into the country.

Many popular fallacies are quietly but effectively punctured by this book. It treats of the evolution of the ideals of reclamation, beginning with the real needs of pioneer farmers and their individual and collective work in clearing and draining the land or bringing water to dry lands. It shows how organizations and communities have been developed and millions of acres of otherwise unproductive lands have been brought under the plow. Later, when the relatively simple and easy enterprises had been taken up, but a demand for more land still remained, corporations were formed to acquire title to waste lands at low cost, irrigate or drain them, and subdivide and sell the reclaimed areas at a generous profit. Getting something for nothing seemed so simple and easy that millions of dollars were poured into speculative schemes without consideration of the economics of the problem. Most of this money was lost, and investors became "involuntary philanthropists." They had hoped to build up a more or less prosperous community, but lost their investment.

Then came the states in their efforts and finally the Federal Government urged on by Roosevelt. He put into effect the altruistic ideal of taking up those enterprises which were too difficult or expensive for ordinary promoters, or which involved interstate or international questions. Large results were accomplished and made known to the world. Remember, however, that the amount of land actually reclaimed and cultivated through investment of federal funds is relatively small—only about one-tenth of the area put to use by private or municipal enterprises—and insignificant in comparison with the publicity given to it and the time spent by Congress. The government came late into the field and was forced to take only the less desirable opportunities. The total area reclaimed has been about two million acres, but of this less than a million and a half acres have produced crops. Over half a million acres, the reclamation of which has cost the taxpayers of the country from $60 to $100 an acre or more, are still lying idle and at the same time millions of other acres reclaimed by private capital are almost untouched. The possibility of their profitable development and use in the face of the steadily increasing abandonment of millions of acres of formerly cultivated land is remote.

Probably no one item of local importance has demanded so much attention on the part of Congress as this reclamation problem. Time after time, especially in the short sessions, filibusters resulting from disagreement over reclamation items, some of them relatively minor items such as relief bills and local reclamation schemes, have defeated measures of great importance to the whole nation. Yet the total amount of agricultural products from these lands reclaimed at the expense of the government does not amount to 1% of the total crop production. In fact, the value of the whole yield from federally reclaimed land is less than that resulting from the change of a few cents in the market for any one of the great staple crops.

Approaching the subject from a local standpoint, the investment of a few million dollars of federal funds and the cultivation of a few thousand acres is a matter of keen interest; yet Teele's analysis of the economics shows that beyond the gain to local beneficiaries the enterprise is not worth what it cost.

We are an emotional people governed largely by sentiment developed and directed by well-organized minorities. No group of hard-headed business men, studying each new federal reclamation enterprise on the basis of commercial merit, would consider for a moment making investments such as have been made and are being urged for selfish or sentimental reasons. Congress has been swept away by the glamor of such phrases as "making two blades of grass grow where one grew before" or "making the desert blossom like the rose," not stopping to ask whether the two blades of grass or the roses were worth the expense.

The best antidote for the unbusinesslike handling of our reclamation system is the careful reading of this book. It states the essentials with few adjectives of praise or blame; it gives the principal facts in readable form.

F. H. NEWELL

Brunner, E. S., Hughes, G. S., and Patten, M. AMERICAN AGRICULTURAL VILLAGES, *New York: George H. Doran Co., 1927, pp. xxiii, 326. $3.50.*

Brunner, E. S. VILLAGE COMMUNITIES, *New York: George H. Doran Co., 1927, pp. vii, 244. $2.25.*

These two volumes are the third and last, respectively, of a series of five that embody the results of a study of American agricultural villages by the Institute of Social and Religious Research. These studies were made from material collected in C. Luther Fry's book, *A Census Analysis of American Villages*,[1] which is a tabulation of the 1920 Census data for 177 villages scattered over the United States. This material was augmented by data collected by field workers, who visited 140 of the 177 agricultural villages analyzed in Mr. Fry's volume.

The purpose of the volume on *American Agricultural Villages* is simply to assemble and interpret the field-work data from the 140 villages. An agricultural village is defined as an incorporated place which has a population ranging from 250 to 2,500, which is located in a strictly farming area, and which functions chiefly as a service station to the surrounding countryside.

The material falls into two main classes. The opening chapters deal with the interrelationship of village and country and attempt not only to show the effect of the recent agricultural depression upon the villages, but also to analyze the structure of the village community. The later chapters present detailed data about the economic, social, and religious life of villages.

As a means of measuring the relationship between country and village the authors use their concept of a "village community." They define a "village community" as the area in which most of the inhabitants are served by a majority of the social, economic and religious services of the village. More specifically, these are business and commercial services, and professional and cultural services.

The book contains a great deal of comprehensive and statistical material in regard to the village itself. Chapters are given to the village as a farm service station; the village school and church; social organizations; and politics. The authors, in the last chapter, devise a method of measuring the village wealth. The tangible property lying within the

[1] Published by the Institute of Social and Religious Research, New York, 1925. pp. xvi, 165. $2.50.

incorporated limits of the village serves as a basis for deriving an index of village wealth. This index consists of the total valuation figure divided by the number of households in the village. Detailed statistical comparisons were made of the different-sized villages.

The volume on *Village Communities* is a summary of the entire village study by the Institute of Social and Religious Research. The aggregate population of all types of villages in the United States, whether incorporated or not and whether agricultural, industrial or resort, is 12,858,521. The study points out that here we have about one-tenth of our total population whose activities have been relatively neglected in investigations of urban life. This research also indicates that the village in the United States is not declining as has often been asserted. Certain villages have declined but the trend is toward an increase in village population except where villages are very close together, as in the Middle Atlantic States. Also the rate of gain for the last 20 years has been more than four times the rate of increase of the rural population outside of incorporated areas. The village population is thus becoming an increasingly important element in the total rural population.

In order to give the reader an idea of the substance of the material collected by the field worker on each individual village, the author devotes the second part of his book to a description of eight villages deemed representative of those studied. All the names used are fictitious.

The entire study, no doubt, is a pioneer venture in the analysis of the American village and community. The tabulation of the census material on the 177 villages is a clear gain. Nevertheless, the author himself says that the study is more in the nature of a reconnaissance. In no one state is the sample of the villages large and a great many questions are raised which need further investigation before any conclusions can be advanced.

HAROLD G. AVERY

BOOK NOTICES

North, Nelson L., and Van Buren, DeWitt. REAL ESTATE TITLES AND CONVEYANCING. *New York: Prentice-Hall, Inc., 1927. pp. x, 719. $6.*

The intricacies of the law of real property with respect to real estate titles and conveyancing are examined by these authors for the benefit of the real estate broker, the trust official, the lawyer and the student of real estate practice. The outstanding limitation of the book lies in the nature of the subject. The law of real property dealing with the ownership and transfer of real estate is so technical, and custom and procedure so varied in the individual states that such a treatise must either describe one state accurately or several states somewhat inaccurately. The experience of the authors in real estate legal work in the State of New York leads them to present very carefully and correctly the New York practices with some qualifications and comments on practices in other states. The latter material is necessarily incomplete.

The three initial chapters in the book describe the development of real property ownership, the legal concepts of real and personal property and rights and interests in land. The authors use non-technical language, although that does not change the very technical character of the subject.

Description, surveys and the methods of transfer of titles are next treated. The significance and practices of the recording offices are discussed in Chapter VIII, following a chapter on the historical development of title records which includes a discussion of the legal aspects of notice. The

chapters devoted to the discussion of abstracting and examining titles, an illustration of examination of title, the report, title actions and the description of the functions of the abstractor and title examiner are very complete but are of interest primarily to the lawyer or professional title worker.

The six concluding chapters of the book are the most important to the real estate broker and the student of real estate practice. Chapter XV deals with the preparation and closing of title, including a general description of methods of removing objections, the papers required, escrow closing and closing statements. The use of escrows is regarded by the authors as sufficiently important to merit a full chapter (Chapter XVI). Chapter XVII deals with the legal controversies arising out of realty contracts.

The last three chapters illustrate briefly the facts, the instruments, and the procedure involved in a sale, an exchange or a mortgage loan. Over one-half of the 719-page volume is given over to the reproduction of more than 200 forms used in real estate title work, showing all the steps from the beginning of a transaction until a "clear title" is delivered. In the opinion of the writer, the usefulness of these forms is greater to the lawyer than to the layman. The contribution of the authors lies in discussing the origin and fundamentals of land titles, the searching and abstracting of such titles, and the forms and procedure in real estate transactions.

H. Morton Bodfish

Reep, Samuel N. Second Mortgages and Land Contracts in Real Estate Financing. *New York: Prentice-Hall, Inc., 1928. pp. xxi, 251. $5.*

The purpose of this publication is to show the need for further development of second mortgages and land contracts as instruments of finance to serve buyers of real estate. Improvement of these instruments and standardization of the machinery for their use are desirable in order to assure the same stability to this type of financing as obtains in other lending operations for which real estate is security.

From a practical standpoint the chief problem in real estate financing is "bridging the gap between the down payment and the first mortgage." The difficulty lies in the fact that the second mortgagee is interested in the same security as the first mortgagee but his risk is greater. Legislators have sought to curb through statutory limitations the amount that second mortgagees may secure as compensation for this greater risk. But Mr. Reep points out the fallacy in legislative thinking. The ultimate borrower will, of course, benefit by the establishment of a lower rate, but what of the lender? No one is required to place his money in something he does not like or in which he regards the compensation as unequal to the risk involved. As a result of these statutory enactments, second mortgage financing has suffered from an inadequate supply of funds. Numerous attempts to evade the usury regulations have failed and brought the business into disrepute. Another result has been that financing by second mortgage and land contract has resolved itself into a discount business.

Only a few companies make it known that they do a second mortgage and land contract business. The best examples are found in some of the Building and Loan Associations in Philadelphia and more or less throughout the whole of Pennsylvania. These associations have been making loans up to 66% of the appraised value of the property, but this is far from the 75% required by most borrowers at the present time. Organizations primarily for carrying on a second mortgage business have developed only in recent years. Room for improvement and development of a direct service is seen particularly in the lack of uniformity in their operations which is largely the result of the varying requirements in the different states.

Mr. Reep has given a very comprehensive discussion of the following topics: the clear distinction between commission and discount; preparation of papers for second mortgages and land contracts with the various covenants and adjustments that are inserted therein; the advisability of foreclosure of second mortgages and land contract concellation; sharp practices that have met with opposition throughout the country; the broker and the junior lien; the market that it is possible to develop; and the future as the author views it from past experience.

The able organization and clearness of the statements, including the illustrations, mark the book as a contribution to the field. The author has a grasp of law coupled with a knowledge of practice which enables him to present the more technical facts in language understandable to the layman.

F. R. Bennett

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